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Prompt Action in Naval Shipbuilding

Will Stimulate Merchant Construction

SPEEDY and effective action, cutting through all unnecessary red tape, which has since the beginning characterized the administration in Washington is again strikingly illustrated in the announcement that bids from private shipyards on the building of seventeen of the program of thirty-two naval vessels called for in the industrial recovery act will be opened July 26. This work in shipbuilding could not come at a more opportune time. Employment in the shipbuilding industry in the United States is now at the lowest point since the war. Estimates have been made that the naval program will assure employment for 50,000 workers over a period of three years, half in the shipbuilding yards and half in allied industries.

The types of ships called for, including several smaller vessels such as destroyers, gun boats, and submarines, will make it possible for a wide distribution of this work among the smaller as well as the larger private shipyards. At least 10 shipyards located on the Atlantic and Pacific coasts are in a position to bid on some part of this work.

In the announcement issued at Washington on June 19 by Henry L. Roosevelt, assistant secretary of the navy, on the opening of bids in July for the construction of 17 vessels in private shipyards, it was pointed out that 16 of these are included in the 32 authorized under the industrial recovery act, while the seventeenth, a heavier cruiser, was authorized in 1929. As already generally reported the navy department will on July 6 open bids from private shipyards for the construction of four destroyers leaders, the total estimated cost of which will be about $12,000,000. These vessels were authorized in 1916 and are in addition to the seventeen vessels of the new program, thus making a total of 21 vessels for construction in private shipyards.

Now that it has the authority, and with the employment situation in mind, the navy department can be counted on to lose no time in getting the work under way. Award of contracts is expected just as promptly as action can be taken after receiving and reviewing the bids.

The remaining 16 vessels, it is understood, will be awarded to navy yards after all of the details of placing orders in private shipyards have been taken care of. It is possible that this program will be found somewhat more than the navy yards can readily take care of and private shipyards may be asked to help out in order to complete the program in time.

The effect of this welcome activity in naval shipbuilding is certain to stimulate merchant shipbuilding. Much planning has been done in recent months for new merchant construction including tankers. These proposals, however, have been mainly of a tentative nature, the prevailing uncertainty of general business making the owners hesitate in placing orders. The two factors, widespread improvement in general business conditions now generally felt all over the country and the beginning of a naval program, should have the effect of bringing commercial vessel projects to a head. It is going to be quite clear that prices are now at the most favorable point and that there is only one way they can go, and that is up.

Placing orders now the owner is still in the position to negotiate with the shipbuilders on a most favorable basis because of his need of additional work. The shipbuilder is now at the peak of efficiency and all costs are at lower point than they are likely to be with continued improvement in business.

Though shipping has suffered in much the same proportion as other business there are now many definite signs of improvement. Idle ships are again beginning to find employment. One instance among many might be mentioned. At the port of San Francisco, for instance, the May records for general cargo handled show 815,734 tons which is the peak month since October, 1931, and it is 21 per cent more than May of last year.

More than 12 freight ships formerly idle have been placed in commission at this port. At Seattle 15 idle ships have gone into service. A number of additional freighters have returned to service at Portland, Oreg.

On all sides there are signs of a pick-up and the shipowner will soon have the necessary incentive to put his plans for new construction and renovation into effect.

World Mercantile Shipping Crisis

Analysis of British Point of View

By A. H. Jansson

A REPORT entitled *The Mercantile Shipping Crisis,* on the existing position in the international overseas carrying trade of the world, was presented by the British national committee of the international chamber of commerce at the biennial congress of the chamber, May 29, at Vienna. This position, the committee states, is viewed with the gravest concern. The report covers the circumstances in which that position has been created; and also summarizes the conclusions of the committee. These conclusions are given in full later on, and several of them will meet with general agreement among intelligent shipping men of all nations. On some, however, on account of the premises on which they are based, everyone favorably inclined toward a fair place for American vessels in this trade will disagree emphatically.

Using statistics from qualified and unprejudiced sources, including Lloyds and our own department of commerce, some startling conclusions may be drawn which are not justified after a fair analysis. For instance, in a table comparing all steam and motor tonnage at June, 1914, 1923 and 1932, the United States is shown to have had a sea tonnage of 2,027,000, gross tons in 1914 and in 1923 a gross tonnage in the same category of 13,426,000; dropping to 10,270,000 in 1932.

Our figures show that in July, 1932, the American merchant fleet of steel ocean going vessels, steam and motor, of 1000 gross tons and over, included 1733 vessels of 9,501,828 gross tons. The comparatively slight disagreement in these overall figures is not the point, however,. Of the 1733 vessels in the American merchant fleet, 861 of 4,303,986 were engaged in the coastwise trade which by long established custom is confined to American flag vessels exclusively. This leaves 872 American merchant vessels of 1000 gross tons and over of an aggregate total tonnage of 5,206,842 nominally engaged in what may be called foreign trade.

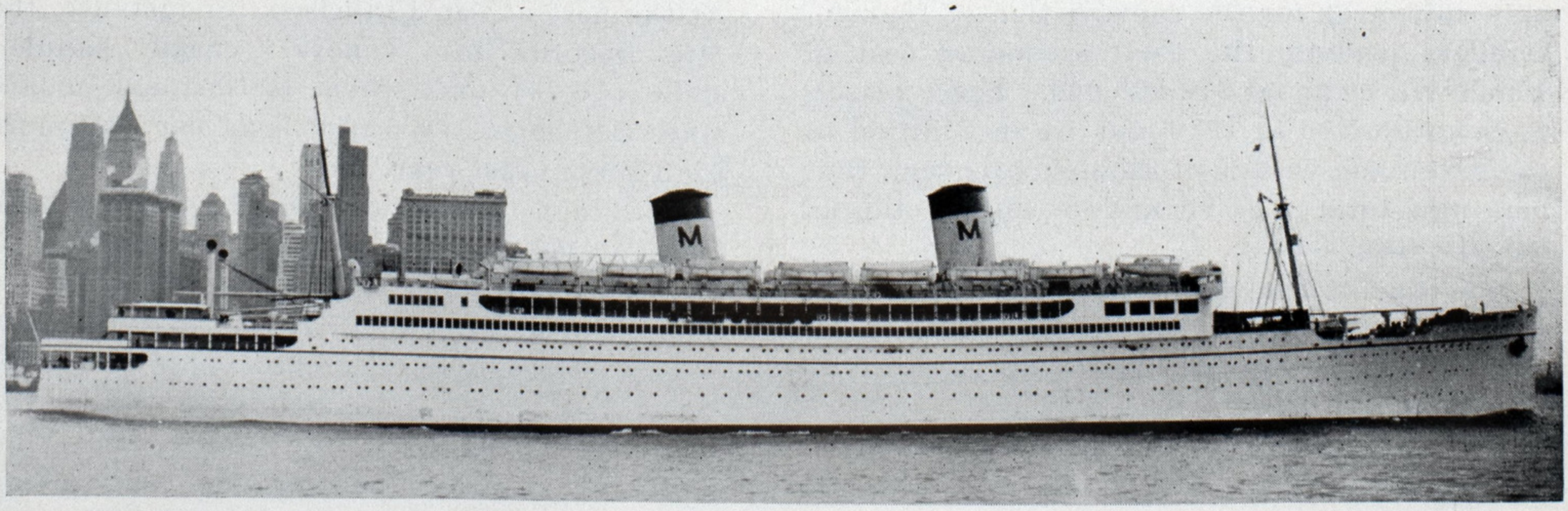
How Fleet Is Divided

Further analysis will show that of these 872 vessels of 5,206,842 gross tons, a total of 362 of 2,089,864 gross tons are owned by the shipping board and of these 238 of 1,367,825 gross tons are laid-up (and in 1933 the number of laid-up shipping board vessels increased to 254). Of the laid-up shipping board fleet no less than 112 vessels of approximately 650,000 gross tons have already been sold for scrapping, though not yet delivered. It must be remembered that all of the remaining vessels owned by the shipping board (and 52 of these, the more suitable ones, have been sold to private interests but not yet delivered at the time for which the figures are quoted) are at least 13 years of age, built under war time conditions, and are either obsolescent or rapidly reaching that stage. Many of those not already sold for scrapping and for private operation will never again be commercially used.

This leaves a *privately owned* American merchant marine as of June 30, 1932, of 510 vessels of 3,116,978 gross tons nominally in engaged in and suitable for the foreign trade. Let us look a little farther into the history of these privately owned ships. In 1917 in the category of steel ocean going vessels of 1000 gross tons and over, the United States had 658 vessels of a total gross tonnage of 2,642,348 privately owned. This was the total fleet for both foreign and coastwise and since in that year we carried only 18.6 per cent of our foreign waterborne commerce, the vast majority of them were engaged in coastwise shipping. For years except for the impetus of the war there had been comparatively little shipbuilding for private account and as soon as war was declared the capacity of the shipyards was quickly absorbed by the shipping board. It can, therefore, be stated that a great proportion of the then existing American merchant fleet was obsolescent and inadequate for ocean service.

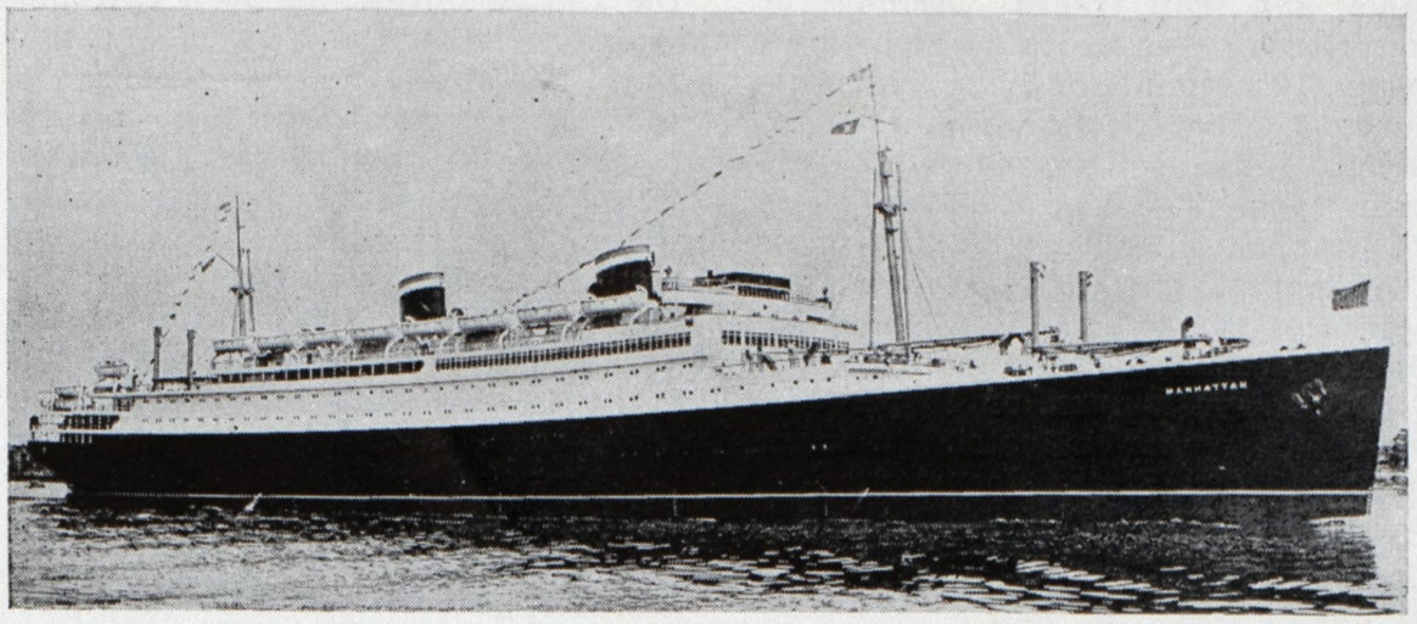
In 1932 the privately owned merchant marine of the United States in steel ocean going vessels had risen to

AS a direct result of the aids granted by the merchant marine act of 1928, a number of fine, modern, efficient vessels, suitable for particular services, have been built in American shipyards and are now in operation. Twelve of these, representing 33 in all, counting sisterships, are shown in the accompanying illustrations. Every vessel was designed having in mind a specific route in foreign trade from an American port.

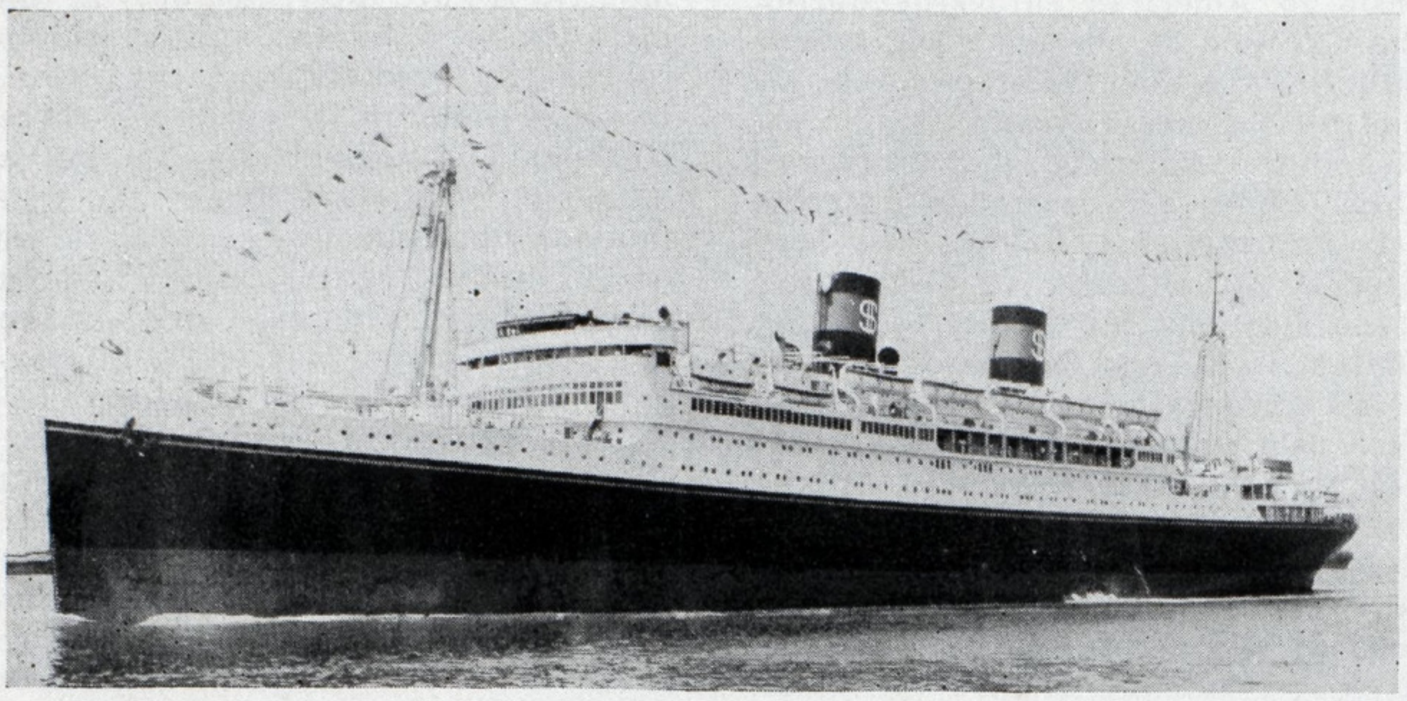


S. S. Mariposa—18,017 *gross tons—Speed,* 20½ *knots—Completed, Dec.* 14, 1931—*Sisterships, two—See* MARINE REVIEW, *Feb.,* 1932

1043 vessels of 4,997,356 gross tons. This increment of some 400 vessels is represented by purchase of foreign vessels, purchase of shipping board vessels and new building for private account. The purchase of shipping board vessels during this period, taking for lack of better figures the difference in the shipping board fleet as of July 1, 1921, and July 1, 1923, accounts for approximately 200 vessels of 862,179 gross tons. The remaining, approximately 200 vessels, of 1,559,066 gross tons, added to the privately owned American merchant marine between the years 1917 and 1923, were built for private account in American shipyards or in foreign shipyards, and purchased from foreign owners.



S. S. Manhattan—24,289 *gross tons*—*Speed* 20 *knots*—*Completed, July* 27, 1932—*Sistership, one*—*See* MARINE REVIEW *for September,* 1932



S. S. President Hoover—21,936 *gross tons*—*Speed,* 20 *knots*—*Completed, July* 11, 1931—*Sistership, one*—*See* MARINE REVIEW *for August,* 1931

Privately Owned Vessels

From 1923 to 1932 the total steel ocean going *privately owned* merchant fleet of the United States in units of 1000 gross tons and over, engaged in the two categories, foreign and domestic commerce, had increased to 1371 vessels of 7,421,964 gross tons. In the meantime the shipping board fleet had decreased from 1313 vessels of 6,370,777 gross tons to 362 vessels of 2,088,864. In other words, during this period the shipping board had ridded itself of something like 951 vessels of 4,281,913 gross tons in these various ways; by selling for scrapping, by selling to foreigners under certain conditions and by selling to private American operators. How many vessels were disposed of in this manner in each category is susceptible of determination by a search of the records. For the present purpose it is sufficient to point out the importance of purchased shipping board tonnage in the increment shown in privately owned tonnage in the interim between 1923 and 1933. During this period the privately owned fleet had increased from 1043 vessels of 4,997,356 gross tons to 1371 vessels of 7,421,964 tons or by an amount equal to 328 vessels of 2,424,608 gross tons.

This increase in privately owned vessels in the sea going category of 1000 gross tons and over had been made up, as was the increase between the years 1917 and 1923, in three ways; new ships built for private account in American shipyards; purchase from the United States shipping board, purchase and building of ships in foreign countries for American account and transferred to United States registry. One definite group can be identified. These were built with the aid of construction loans from the United States shipping board. As of July, 1932, 60 new vessels of 610,906 gross tons had been so built. Of the remaining 268 vessels of 1,813,702 gross tons, 39 of 265,815 gross tons were more or less elaborately reconditioned after purchase from the shipping board.

The remaining 229 vessels of 1,547,887 gross tons by which the privately owned American merchant marine was increased during the 10 year interval between 1923 and 1933 represent other vessels purchased from the shipping board, vessels built or bought abroad and vessels built in American shipyards. To this number must be added replacements of privately owned American vessels sold, abandoned or lost. The point, however, is that outside of the vessels built and reconditioned with the aid of construction loans and the comparatively limited number of new vessels built for private account without aid of construction loans all other vessels range in age and condition of obsolescence from over ten years to 35 years in age.

Engaged in Overseas Trade

Further, when we stop to consider that as of June 30, 1932, only 510 privately owned vessels of 3,116,978 gross tons were nominally engaged in foreign trade and that as of March, 1932 of 1371 privately owned vessels of 1000 gross tons with an aggregate gross tonnage of 7,411,964 in both foreign and coast wise trade, 391 of an aggregate gross tonnage of 1,569,045 were idle, we begin to get some idea of the true proportion of American tonnage in overseas trade.

Say that the idle tonnage is divided between foreign and coastwise in proportion to the number and tonnage in each instance, this will mean that in March, 1932 the active privately owned American merchant marine in the foreign trade amounted to approximately 365 vessels of 2,230,883 gross tons. Now if to this figure is added the active shipping board vessels at that time engaged in foreign trade amounting to 124 vessels of a total aggregate tonnage of 722,039 we get the total figure for American vessels engaged in foreign trade as of March, 1932 of 489 vessels with aggregate tonnage of 2,952,922 gross tons. Again it must be remembered that in these figures are included a very considerable number and tonnage of tankers, largely owned by and serving oil companies, and not operating in the sense of common carriers.

In this connection in a report, dated 1932, by Jesse E. Saugstad of the bureau of foreign and domestic commerce on shipping and shipbuilding subsidies, it is stated:

"Considering only commercial vessels of 1000 gross tons and over, 44 per cent of the total privately owned tonnage of United States registry is owned by industrial or importing entities operating in specialized services such as the petroleum,

steel, and fruit trades. Among the petroleum companies which own fleets, 12 account for 1,816,276 gross tons; 3 other fleets which are primarily industrial aggregate 339,442 gross tons. The fleet of each of these 15 companies exceeds 50,000 gross tons, and their total represents two-thirds of the total United States industrial tonnage. On June 30, 1931, 1,297,795 gross tons, or 40 per cent of the seagoing industrial tonnage under United States documentation, was engaged in the foreign trade."

Status of American Ships

The above is as nearly as possible an accurate picture of the present status of the American merchant marine in foreign trade. For the fiscal year ending July 1, 1914, 9.7 per cent of the foreign waterborne commerce of the United States was carried in American vessels. For the fiscal year ending July 1, 1932 the percentage of the foreign waterborne commerce of the United States carried in American vessels had increased to 34.7 per cent.

Let us now return to the report of the British national committee presented at the biennial congress of the international chamber of commerce at Vienna on May 29. In one of the tables in this report, referred to above, comparing all steam and motor tonnage as of June, 1914, 1923 and 1932, Great Britain and Ireland are shown as having 18,892,000 gross tons in 1914, 19,115,000 in 1923, 19,562,000 in 1932; with the correspondingly nominal increase in the period 1914 to 1923 of 223,000 gross tons and in the period from 1923 to 1932 of 447,000 gross tons; while the United States is shown to have had an increase of 11,399,000 gross tons as between 1914 and 1923, with a decrease of 3,156,000 gross tons during the period from 1923 to 1932.

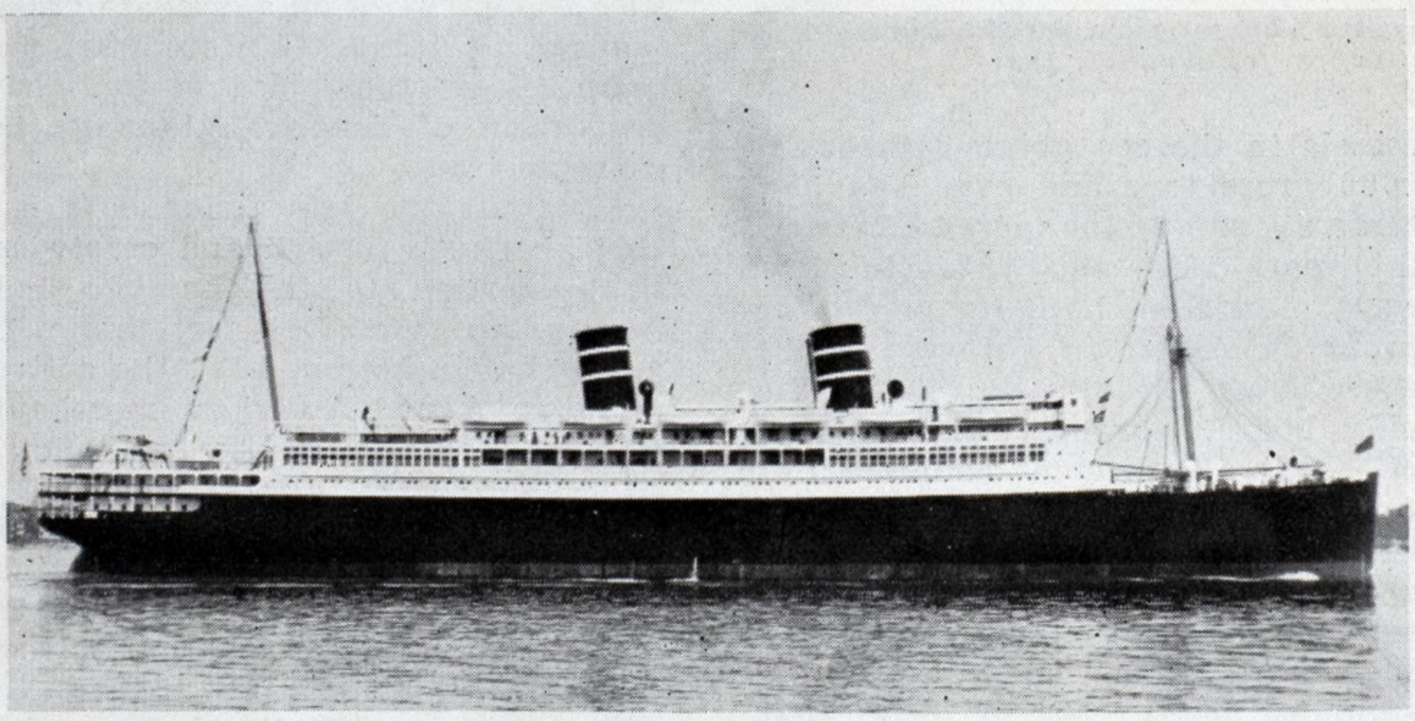
To anyone not analyzing these comparative figures, looking at them just as they stand, the increase in British shipping during these periods has been nominal whereas that of the United States has been extremely excessive, without rhyme or reason. The analysis given so far shows that actual conditions bear no resemblance to any impression that might be gained by looking at this table. No mention is made of the comparatively insignificant coastwise trade of Great Britain nor of the great volume and importance of this trade in the United States; nor is any particular emphasis made of the fact that the large losses of merchant shipping suffered by Great Britain during the war were gradually replaced in postwar construction of what might be termed much more modern and altogether more suitable ships for the trade than those built in great haste in American shipyards during the war and in the year and a half following the war. In other words, except for the comparatively recent construction of splendid special types of ships under the merchant marine act of 1928, the British merchant fleet is far superior to the vessels these statistics so readily show the United States now possesses.

We have tried to show that the actual participation of American vessels in the foreign trade of the United States at the present time, though vastly greater than it was in 1914, is still modest. Only 7 per cent of the world's trade is carried in American ships and this is represented almost wholly by the 34.7 per cent of the foreign trade of the United States.

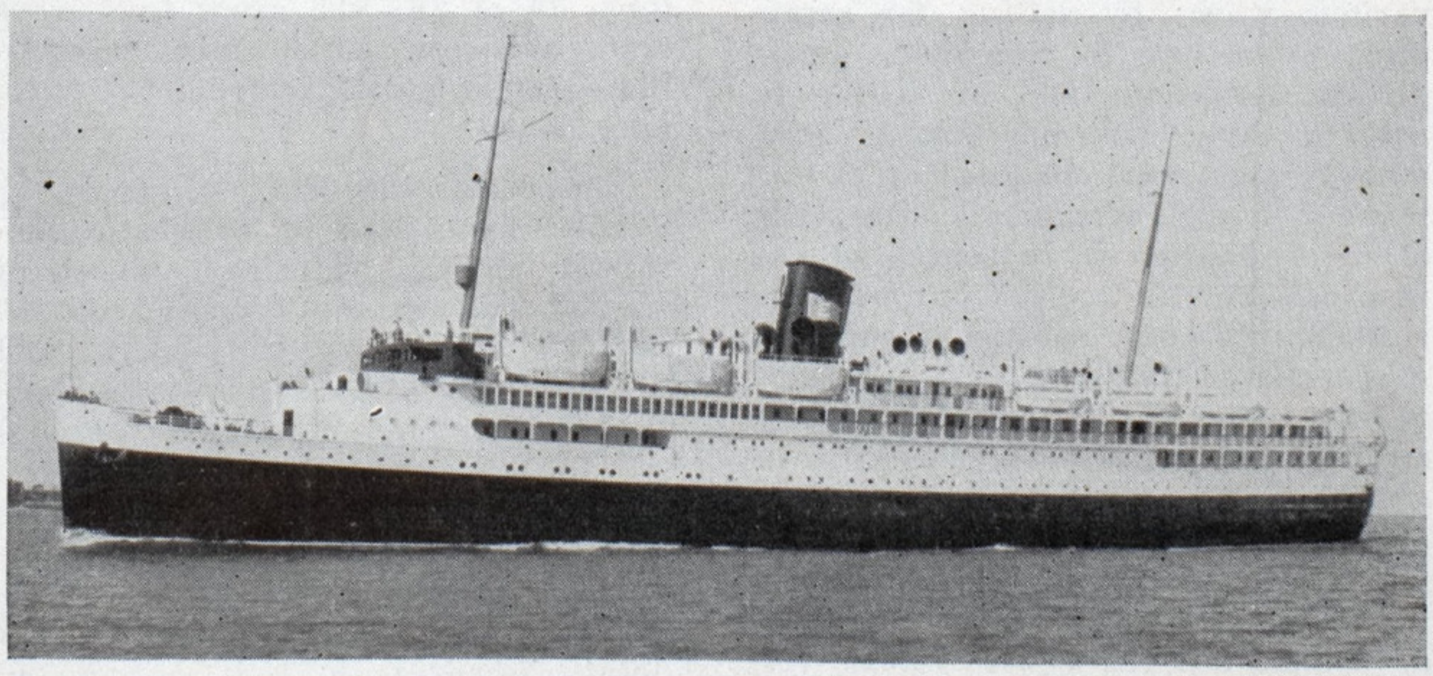
Methods of Creating Tonnage

In its report the British national committee makes it perfectly clear to the innocent reader that while Great Britain has stood patiently by without any appreciable government aid to private shipping and with consequently a very nominal increase in British tonnage since before the war, other nations including the United States have employed certain "methods to create tonnage" which by inference ought to be quite shocking to all lovers of fair play. At the moment we are interested only in the methods used by the United States to "create tonnage," and the report is quite helpful in outlining these methods but neglects to give but a modicum of explanation of the reasons for adopting such methods. After having quoted figures, some of which have been referred to above, on the increase from pre-war levels in merchant tonnage of the maritime nations of the world, the report states:

"It is manifest from these figures that since the war some nations have abandoned the pre-war policy of leaving to individual enterprises the provision of ocean transport facilities required in international commerce —a policy which had related the supply of ship carrying power to the world's demands for transport and without bringing any burden on national exchequers had met and satisfied the needs of international trade throughout a long period of vast development and extensions in both international commerce and shipping. Some nations are no longer content to limit their grants in aid to the maintenance of sea communications on particular routes, the promotion of particular trades in which they have special interests, and the provision of particular types of vessels which would be of value in time of war. They have since the war aimed at replacing by ships under their flags, and not merely supplementing



S. S. Morro Castle—11,300 *gross tons—Speed,* 20 *knots—Completed, Aug.* 15, 1930—*Sistership, one—See* MARINE REVIEW *for September,* 1930

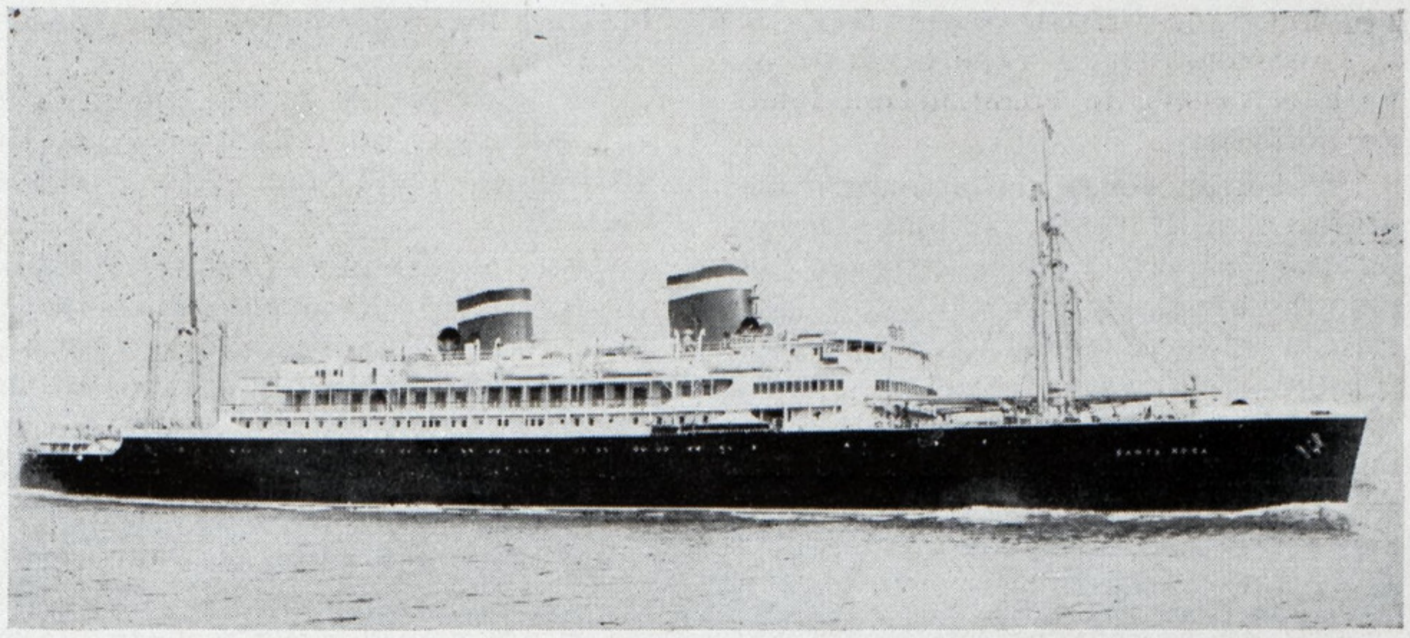


S. S. Acadia—6185 *gross tons—Speed,* 20 *knots—Completed, June* 7, 1932—*Sistership, one—See* MARINE REVIEW *for June,* 1932

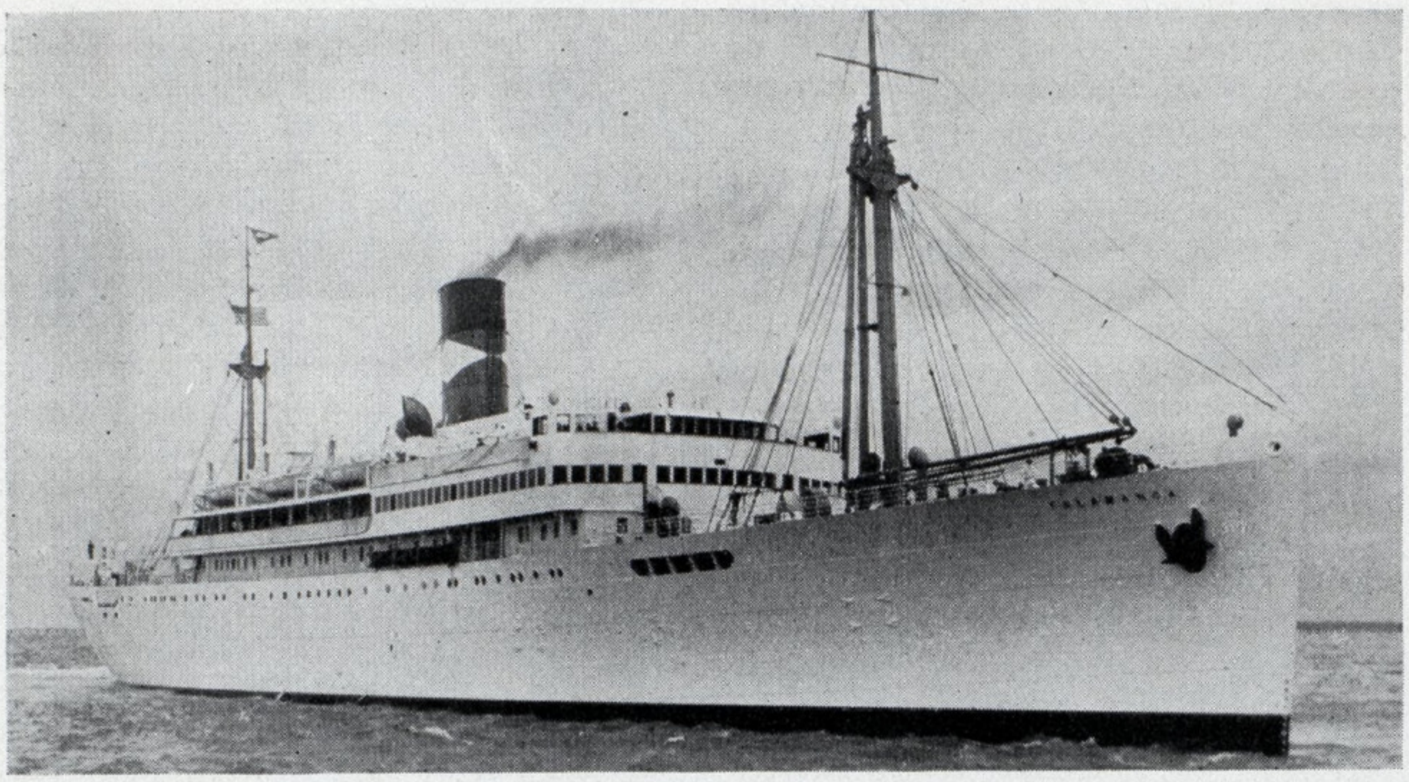
the facilities offering in the open freight market. And to obtain that object they have built and run, at the cost of the state, ships to compete in international trade with ships under other flags."

Cites Shipbuilding Expenditures

It is evident that the British national committee is unanimous in thinking that this is not sporting. Then to make its case particularly strong, the general scope and character of the methods employed by various countries to "create tonnage" since the war are summarized, in the main, from the report on *Shipping and Shipbuilding Subsidies* prepared by Jesse E. Saugstad of the bureau of foreign and domestic commerce of the United States department of commerce and issued in 1932.



S. S. Santa Rosa—11,200 *gross tons—Speed,* 18½ *knots—Completed, Oct.* 24, 1932—*Sistership, three—See* MARINE REVIEW *for December,* 1932



S. S. Talamanca—6963 *gross tons—Speed,* 17½ *knots—Completed, Dec.* 12, 1931—*Sistership, five—See* MARINE REVIEW *for January,* 1932

"The shipping policy of the United States since the war," says the British report, "is particularly striking. In 1913 only 228,232 gross tons of merchant shipping were launched in the United States. In 1919, 3,579,826 tons were launched, a figure greater than the maximum pre-war world output for any single year, namely, 3,332,882 tons in 1913.

Why Ships Were Built

"The outlay of the United States government upon ship construction and operation through the United States shipping board from 1916 to June 30, 1931, reached the collosal figure of $3,694,855,792. Of this amount $79,648,869 have been returned to the United States treasury leaving a remainder of $3,615,206,923 as the net cost of the program of the United States government for the 16 year period, less the value of government property and other assets. This cost does not include expenditure by other government departments such as certain sums paid under postal contracts prior to the passing of the merchant marine act of 1928."

No explanation is given—just the bare statements as quoted above with figures taken from an undeniably unprejudiced source, the above mentioned report by Mr. Saugstad of the United States department of commerce, but in this same report much is said about the reasons for this tremendous shipbuilding in the United States in 1919, and the expenditure of such a huge sum of money. It was done, of course, because of the urgent need of ships during the war. As everyone knows it was done to win the war. The responsible leaders of Great Britain during the war not only encouraged this stupendous shipbuilding program but insisted that the very life of the allies depended upon the speed with which the United States could turn out ships. No one could foresee that the war was to end when it did. Looking back now, it is all very well to say that shipbuilding should have stopped with the war, but at that time the momentum of the tremendous machine built up for turning out ships on such a grand scale was too great and the prevailing psychology the world over did not contribute to wisdom and foresight.

It has been pointed out early in this article that a most thorough liquidation of the huge government fleet of merchant vessels has now been made. What would the British have had us do? Take this great fleet out and sink it! Unless it could have been so disposed of, the ships were there to continue somewhere in some hands as an addition to world tonnage. It is nothing less than unreasonable to keep harping back to this war initiated merchant tonnage. Even the British now, on occasion, are not above sneering at its unfitness for trade. We have stated the facts in the case. This war built tonnage is now from 12 to 15 years in age and if what is left of it is a threat to the efficient ships of Great Britain or any other country, all we can say is that they have little of the stamina of their seafaring ancestors.

The British committee's report continues in referring to mail contracts as follows:

'On June 30, 1931, forty-one ten-year mail contracts had been let to private companies under the merchant marine act of 1928. Compensation is not based upon the volume of mail carried but upon the size and speed of the vessels used and the length of the route served. These contracts provide for the permanency of the services undertaken, the construction of new vessels and the improvement of present equipment. It is estimated that the total amount guaranteed for the ten-year mail contracts is $282,426,400. Since then, three other mail contracts have been let."

A Policy of Encouragement

This is a correct statement. It represents the definite policy of the United States to encourage the establishment and the efficient operation of first class vessels in certain trade routes so that we may no longer be entirely dependent on foreign carriers in the development of our world commerce. It is, in fact, granting aid in the maintenance of sea communications on particular routes, the promotion of particular trades in which the United States has special interests and the provision of particular types of vessels which would be of value in time of war. According to its own statement as quoted

above this should meet with the approval of the British committee.

The committee's report continues with reference to construction loans as follows:

"The ship construction loan funds of the United States shipping board on Dec. 31, 1932, have reached the amount of nearly $154,000,000. Interests rates charged on vessels in foreign trade vary from 4¼ to 5¼ per cent for loans authorized previous to the passage of the 1928 act. For those authorized under the 1928 act prior to the 1931 amendment, some interest rates have been as low as low as ¼ per cent. Loans authorized subsequent to February, 1931 are made at the rate of 3½ per cent for vessels engaged in the foreign trade. The 1928 act authorizes the extension of the total sum of the fund to $250,000,000. Loans may be secured for a period of 20 years."

Differentials in Cost

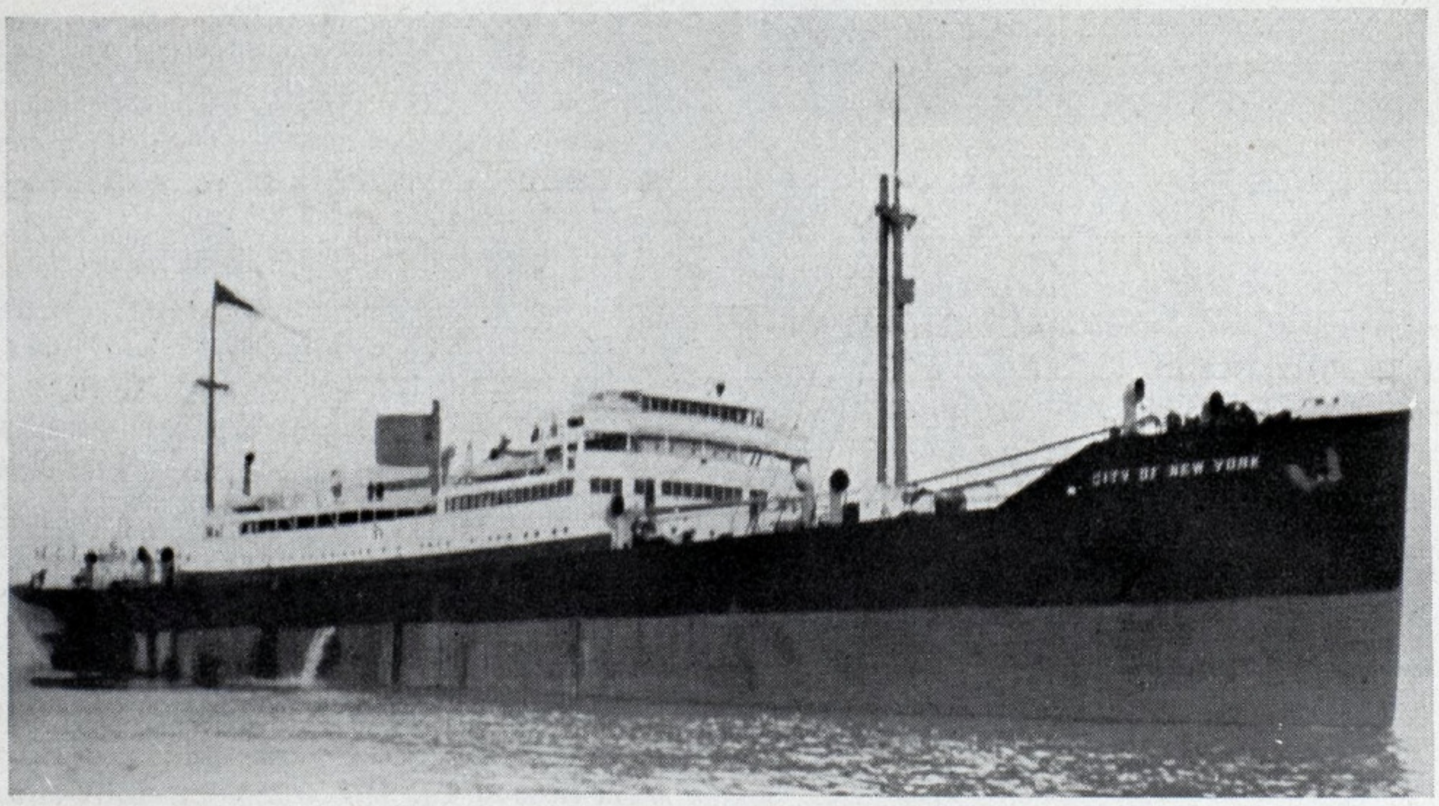
The above statement is correct except that no mention is made of the limitations of loans to 75 per cent. The first 25 per cent of the cost must be supplied by the owner before any loan is made. And it was undoubtedly never the intention of the law that any interest rates should be as low as ¼ per cent which is evident from the February, 1931 amendment. It was the intention of the law that the interest should be no greater generally speaking than that which the government was called upon to pay, so that there would be no loss to the treasury on account of these loans. The reading of the law now having been clarified, adjustment in the low interest rates, if legally possible, is likely soon to be made.

The construction loan fund was created to give encouragement to the building up of an up-to-date and efficient merchant marine and is complementary to the mail contracts proviso in overcoming the very definite handicap of American ship operating in competition with foreign shipping.

With reference to the aid granted the American merchant marine, the British national committee's report stated:

"The government publicly justified the grant of these subsidies by the high cost of shipbuilding in the United States, the high wages of the crew and the need for counteracting the advantages given by other countries to their mercantile marine."

In this connection it may be interesting to state specifically what these differentials have been found to be, as set down in the same report by Mr. Saugstad which the British committee, by its own use of selected excerpts, admits to be authoritative. The excess cost of an American built over a British built two-deck 10-knot cargo steamer, of 7500 tons deadweight, in the spring of 1929 was $170,000, equal to 50 per cent of the total cost in British yards. On this excess of $170,000 the American operator will be obliged to carry annual capital charges covering insurance, depreciation and interest amounting to 15 per cent, or $25,000 the first year. On an 8000 ton deadweight vessel this amount will be $26,700 as the excess capital charge on the construction cost differential during the first year of operation. On higher types of vessels such as high class passenger, and combination cargo and passenger vessels where less standardized design and practice may be employed, the cost differential between British and American yards will become less.



M. S. City of New York—8272 *gross tons*—*Speed,* 14 *knots*—*Completed, Jan.* 18, 1930 —*Sisterships, none*—*See* MARINE REVIEW *for February,* 1930

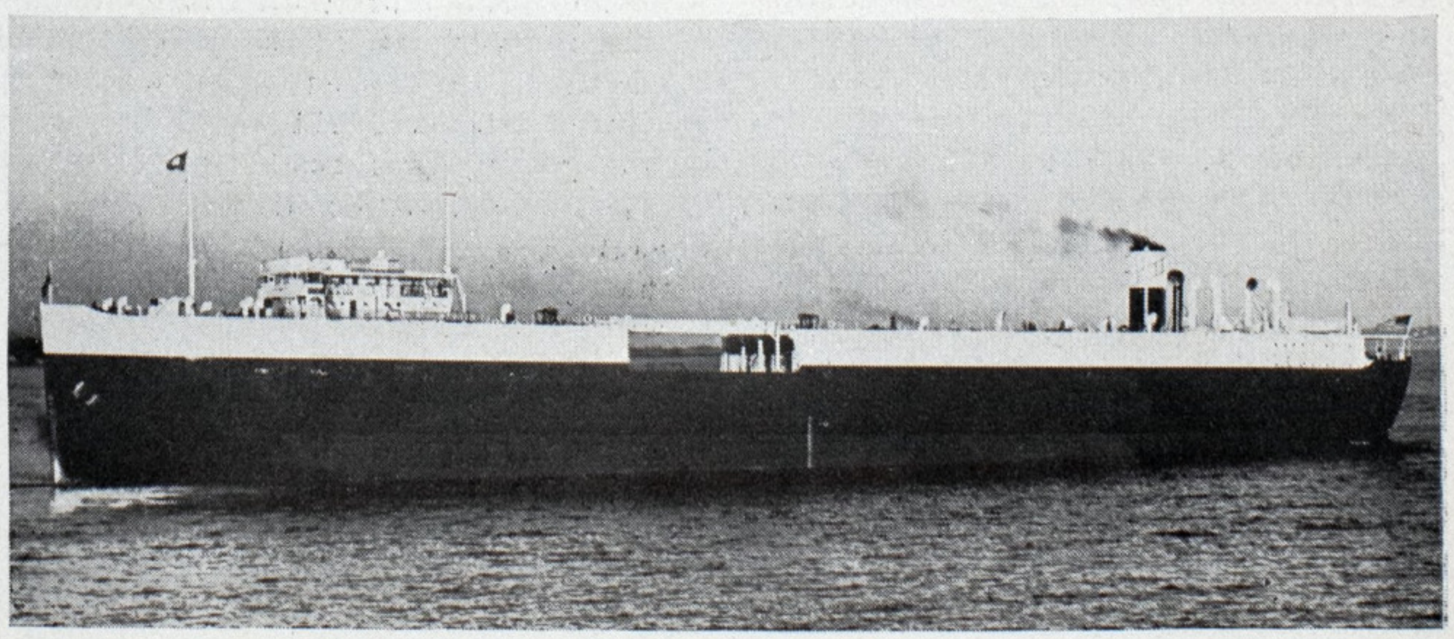
Higher Operating Costs

Now turning to operating costs. Mr. Saugstad states that the greatest differential between vessel operation expense of United States ships and ships of other nationalities is that of wages. Cost of repairs, stores, and fuel may differ in various parts of the world, and if so they are the same to all ships of all nationalities.

Our own comment in this connection would be to point out that each nation's ships will admittedly be called upon to purchase by far the greater proportion of their repairs stores and also possibly fuel in the ports of their own country, and on this account will be at a considerable disadvantage, on account of higher cost.

To illustrate the operating cost differentials, Mr. Saugstad points out, that a cargo ship of 8000 to 9000 tons deadweight under the United States flag will have a wage cost of approximately $100 a day or $3100 a month, whereas for the nearest competitor, a British ship, this item would be $65 a day or about $2015 a month. Ships of other nationalities have proportionately lower wage cost. It is estimated that the annual payroll for this type of vessel will approximate $34,100 for an American vessel, and $22,165 for a comparable British ship, a difference of $12,035. This difference is equal to 35 per cent of the total wage cost of the United States ship or 55 per cent of the wage cost of a British vessel.

Subsistence cost on American ships are also relatively larger than on similar foreign ships. On the typical American vessel used for establishing difference in wages, the subsistence allowed will approximate 60



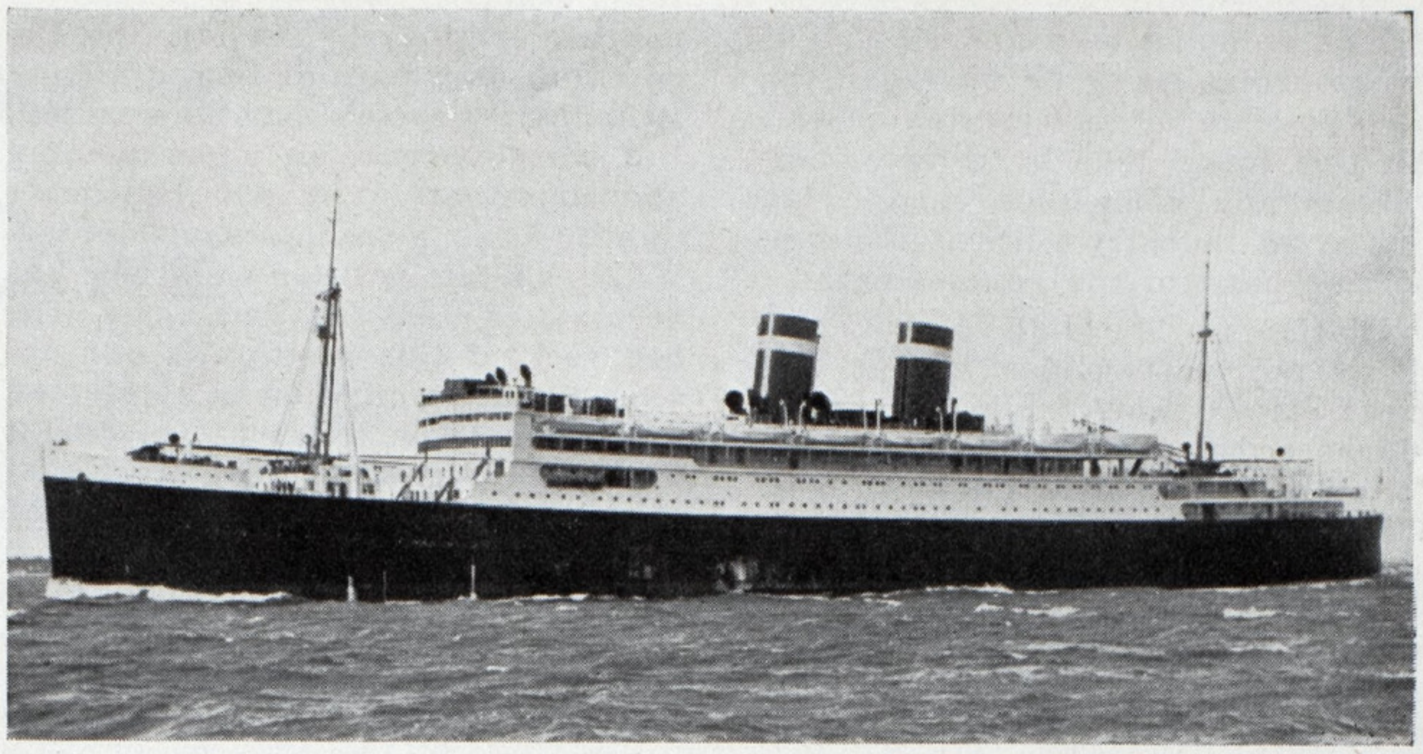
S. S. Seatrain New York—8062 *gross tons*—*Speed,* 16½ *knots*—*Completed, Sept.* 28, 1932—*Sistership, one*—*See* MARINE REVIEW *for November,* 1932

cents per man per day while on a British vessel the subsistence cost will be about 40 cents per man per day. On a basis of an eleven-month year, this will result in an annual subsistence differential of $2310.

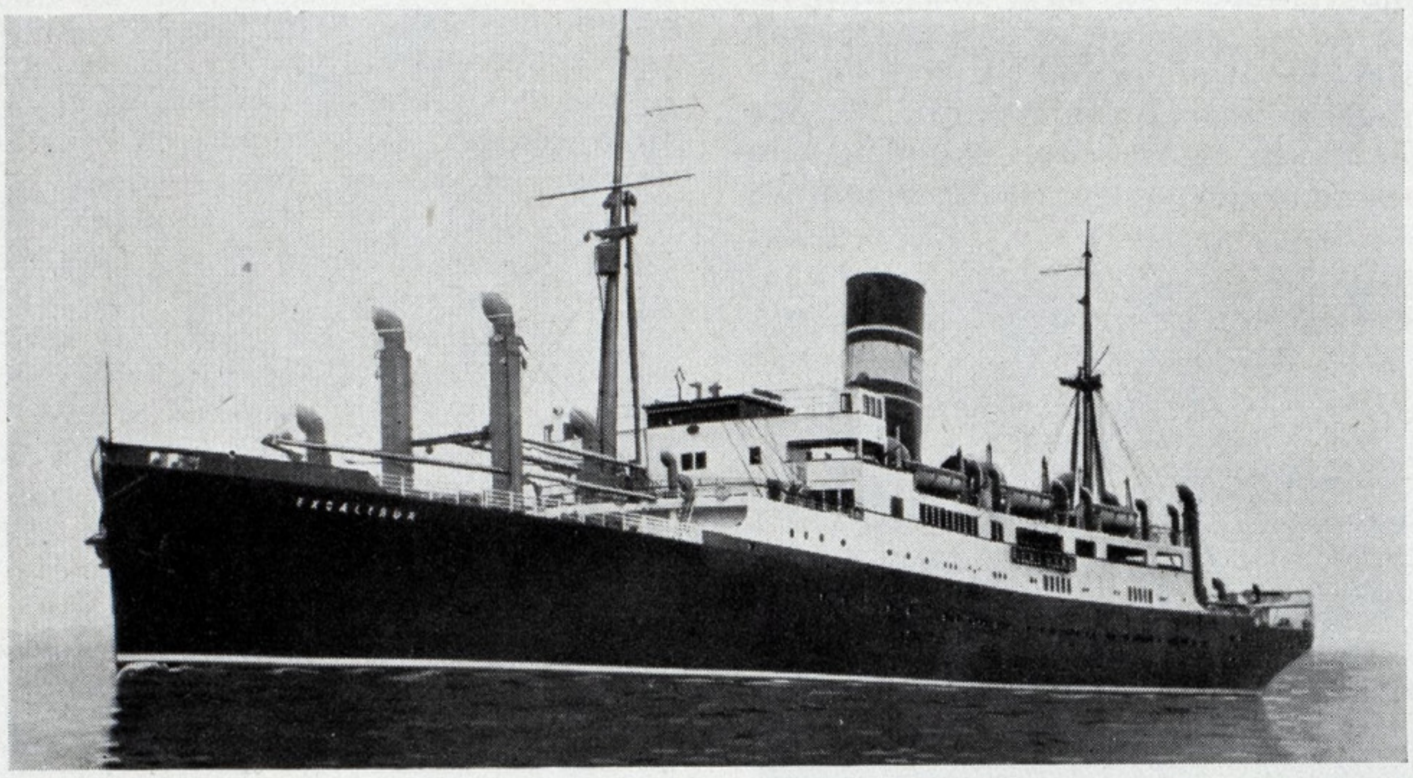
A Substantial Cost Handicap

On this basis the differentials for wages and subsistence for this type of vessel will amount to a total excess operating cost annually of $14,345 to be borne by the United States ship. This amounts to $1.75 per deadweight ton per year for the 8000 deadweight ton ship.

Adding together the construction cost or capital charge differential of $3.33 per deadweight ton and the operating differential of $1.75 for the typical cargo ship under consideration, the total amount will be $5.80 per deadweight ton per year. This is the handicap with its nearest competitor under foreign registry which an American vessel of this type must meet.



S. S. Pennsylvania—20 523 *gross tons*—*Speed,* 18 *knots*—*Completed, Oct.* 10, 1929—*Sisterships, two*—*See* MARINE REVIEW *for November,* 1929, *and April,* 1930



S. S. Excalibur—9350 *gross tons*—*Speed,* 16 *knots*—*Completed, Dec.* 15, 1930—*Sisterships, three*—*See* MARINE REVIEW *for February,* 1931

Conclusion of British Committee

The conclusions of the British national committee on the mercantile shipping crisis are as follows:

1. "To develop and prosper, international trade and commerce in all countries must have at its disposal the best possible ocean carrying power. represented by safe, efficient, regular, frequent and economic shipping services.

2. "Such services can only be assured to international trade and commerce in a freight market, open to ships under all flags, that is free from the disturbing influences inherent to limitations or restrictions framed to promote the interests of vessels under particular flags.

3. "For more than 50 years preceding the war the accepted policy of all maritime nations was to leave to individual enterprises the provision, generally, of such international ocean transport service, and to limit grants in aid out of national funds to the maintenance of sea communications on particular routes, the promotion of particular trade in which the nation had special interests, and to the provision of the particular types of vessels which would be of value to the nation in time of war.

'Under that policy needs of the world's international trade, throughout a period of vast developments and extensions in both commerce and shipping, were met and satisfied without imposing any burden on national exchequers.

4. "Since the war it has been the policy of some of the maritime nations, at the cost of the state, to build and run ships under their own flags to compete with and displace ships under other flags in international trade generally, and not merely to provide ships under their own flag for the particular needs of the nation.

'Under that policy there has been brought into existence, at prodigious cost to national exchequers, a mass of shipping tonnage far in excess of traffic requirements. This disproportion is so great and has lasted for so long, as to render impossible the operation of the international freight market on economic basis.

"It has, moreover, in great measure, paralyzed the shipbuilding and ship owning industry under all flags.

5. "Shipbuilding is progressive, and international trade and commerce to develop must be kept supplied with the most efficient carrying power that can be produced. Before the war, improved types of ships were constantly displacing, as well as replacing old types, and the need for such process is now greater than ever before in view of the mass of shipping tonnage that was built in haste immediately after the war.

6. "So long as shipbuilding shipowning under all flags are left to labor under conditions that make their economic continuance an impossibility, the future of international sea transport is in peril.

"Those conditions are, in the main, the creation of direct and indirect subsidies granted to national shipping, and to premiums granted to national shipbuilding to enable national ships to be built and run on an uneconomic basis.

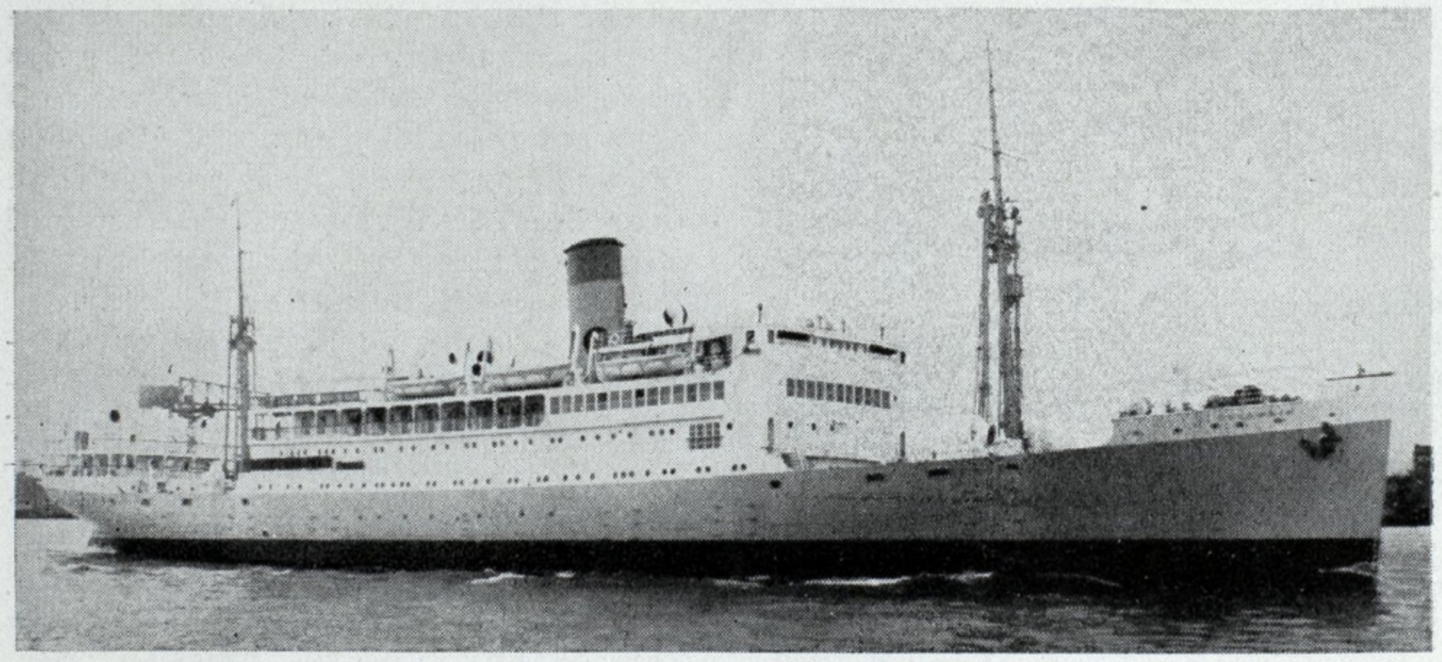
7. "There can be no return to sound conditions in the shipping industry, and the future of international sea transport can never be assured, so long as the uneconomic policies of government subsidies continue."

Wants Return to Pre-War Status

From these carefully prepared conculsions, it is evident that the British national committee would welcome the return to the status quo in world shipping which prevailed prior to the war. It would like to have the rest of the world realize that allowing nature, more or less, to take its course is the best of all ways for the development of the shipping and commerce of the world, confident that under the operation of such natural laws Great Britain will be undisturbed as the great carrier nation of the world. Also that the rest of the world may depend on her unselfishness and fairness to all com petitors in carrying their goods and nationals in world commerce and have complete faith in the effectiveness of the genius and initiative of

British shipping men and shipbuilders to evolve, as trade warrants, the best possible ocean carrying power. All this to be done by private individuals and companies engaged in this great industry without the supporting hand of the government.

If the world could accept this thesis any past golden era of this great empire would fade into insignificance compared with what the future would hold in store for her. What a pity that the rest of the world, each nation predisposed to look upon this question, to some extent at least, from its own national point of view, cannot wholeheartedly fall in line. It would make it so much easier for the British shipping industry and it would save all other maritime nations, according to the committee's point of view. prodigious sums from their national exchequers. But it cannot be. Other maritime nations learned many things during the war and will not voluntarily restore the status quo.



S. S. Colombia—5236 gross tons—Speed, 18 knots—Completed, Nov. 17, 1932—Sistership, one—See MARINE REVIEW *for January, 1933*

Giving Up Our Sea Heritage

In this article we are primarily interested in the position of the United States as a maritime power. It would seem to be unnecessary, and it is in fact unnecessary, to say to the people of such great experience of the sea as the British that it isn't in human nature to expect the United States to meekly hand over its own heritage of the sea. For many years prior to the war this, in effect, is exactly what the United States had done due to the circumstances of preoccupation with the settling and development of a vast inland territory. It was in other words, during the growing up period of this nation that our commercial sea power suffered its decline. Since the war, we have again become sea conscious and development of our maritime power will proceed from now on.

All fairminded men acknowledge the unique position of Great Britain in maritime affairs. We have no ambition nor desire to disturb this position. By ties of common heritage and political philosophy we are predisposed to the continuation of Great Britain as a great maritime nation. But we do expect an understanding and appreciation of our legitimate right to a fair place in ocean shipping. What this fair position should be has been stated time and time again. The bed rock of this position is our unalterable determination to develop an up-to-date and efficient merchant marine in overseas trade, capable of carrying a fair proportion of the world commerce to which we are a party.

We have set out to attain this position by government aid to offset the established differentials in cost of building and operating ships. We want no more than a basis of fair competition. We have not engaged, nor do we propose to engage, in any dumping of ships and services on the trade routes of the world. We are not aware of American shipping men now engaged in overseas trade adopting any policy of cut-throat competition. If the service is better and the vessels are better on any particular route than those offered by our foreign competitors that will have to be accepted as fair competition. That this may come about in certain instances due to government aid must be accepted as the result of a planned development of the commercial trade lanes between the United States and the remainder of the world.

Our Limited Objective

Since we have established our position as having no interest in the ocean carrying trade between foreign countries we may rightly feel that it should be of no concern to any other nation should we, in the course of the development of our merchant marine place a superior service on any or all of our own trade routes.

If a British line, for instance, is sufficiently interested in the ocean carrying trade between the United States and South America, to meet American competition there is nothing to stop its doing so; (it is being done) but it is manifestly absurd for Great Britain to take the stand that the service provided on this route by its own nationals is good enough and that it is unfair to place superior American ships on this route because they receive certain government aid. Should we take the point of view which the British want us to take of ignoring higher American costs, remove all aid to American ships in such a service, let nature take its course, and allow private British shipping men to determine the class of ships warranted by this service, we would in the end have no American ships on this route and would be solely dependent on foreign ships.

The report of the British national committee, though presenting in every word and line the British point of view concerning the mercantile shipping crisis, deserves the most careful consideration by the nations of the world and the leaders of maritime affairs. By a thorough consideration of all of the problems involved, including the fundamental right of governments in the exercise of their just sovereign powers to take steps to aid their own national shipping to overcome disadvantages which cannot in any other way be removed, a basis of operation could undoubtedly be arrived at which would eliminate many existing difficulties and causes for unnecessary friction.

Will Not Turn Back

The greatest difficulty inherent in such a conference is the untenable premise indicated in the British national committee's report in assuming that it is impossible to return to healthy conditions unless all direct and indirect aids to national shipping are removed. We cannot go back to prewar conditions and it will become necessary to iron out the existing problems on the basis of live and let live under fair conditions of competition. The rub as far as Great Britain is concerned is that this would mean acknowledging a defacto situation on routes now being served by American ships instead of insisting that they had no business to continue to operate as long as they received any government aid. After frank consideration of all the factors concerned friendly recognition should be given to such efficient American services.

If a conference on the mercantile shipping crisis is to be held by the maritime nations much good might come if some agreement could be reached to remove the menace of an oversupply in world tonnage by scrapping obsolescent and over-aged ships. There are great difficulties, no doubt, in the way of any practical method of accomplishing this purpose but it might be worked out through the co-operation of the various governments involved. Perhaps something might be worked out on the basis of a prior right in any par-

(*Continued on Page* 38)

Wistaria, Lighthouse Tender, Diesel-Electric Drive

FOR some time now the bureau of lighthouses of the department of commerce has been carrying on a program of new construction of vessels to take the place of worn out and obsolescent units. One of the most recent and interesting vessels to be completed for the lighthouse department is the steel hull, single screw, diesel electric tender WISTARIA, built at the Staten Island, N. Y., yard of the United Dry Docks Inc. This vessel was launched Feb. 3 and delivered early in April.

The WISTARIA, now in service, replaced the small wooden tender WOODBINE in the construction of new navigation aids and in servicing lights and buoys in the waters of Delaware river and Delaware bay. The WISTARIA is operated out of the office of the superintendent of lighthouses in the fourth district at Philadelphia. She was specially designed for the work and embodies many improvements.

Her general dimensions are, length overall, 121 feet, 4 inches; length between perpendiculars, 111 feet, 8 inches; breadth molded, 25 feet; depth molded, 9 feet; and draft, 6 feet, 8 inches. The displacement loaded is 323 tons, and she has a carrying capacity of 70 tons of useful load. The bunker diesel fuel oil capacity is 3,300 gallons. Her speed in service is 9¾ knots.

The main propelling machinery is diesel electric. Two six-cylinder four-cycle, solid injection, 8½-inch bore, by 11 inches stroke, diesel engines built by the Winton Engine Corp. serve as primary power. Each engine, developing 175 horsepower at 150 revolutions per minute, is direct connected to a 100-kilowatt at 400 revolutions per minute, 250 volt, General Electric direct current generator.

Main Propelling Machinery

These two diesel engine driven generators supply current for one main propulsion motor of the double type, rated at 240 shaft horsepower, at 350 revolutions per minute, 500 volts, direct current, supplied by the General Electric Co. The propulsion motor is direct connected to the propeller shaft through a Kingsbury thrust.

One 7½ kilowatts, General Electric, direct current, auxiliary generator, driven by a Winton diesel engine, is installed to furnish power for lighting and other purposes.

One hand steering gear, one electric windlass and one electric driven four-drum hoist, were all supplied by the Lidgerwood Mfg. Co. Pumps of Dean Bros. Pump Co. and Winton Engine Corp. make are installed. Valves and fittings were supplied by the Crane Co.

Ships stores refrigerating equipment was installed by the Carrier-Brunswick International Inc. There is also fitted a Frigidaire Corp. refrigerator. Galley range of oil burning type and other galley equipment were supplied by Elisha Webb & Son Co.

Pneumatic direction indicator and pneumatic engine revolution counter were supplied by Alexander McNab. Baldt Anchor, Chain & Forge Corp. supplied the anchors.

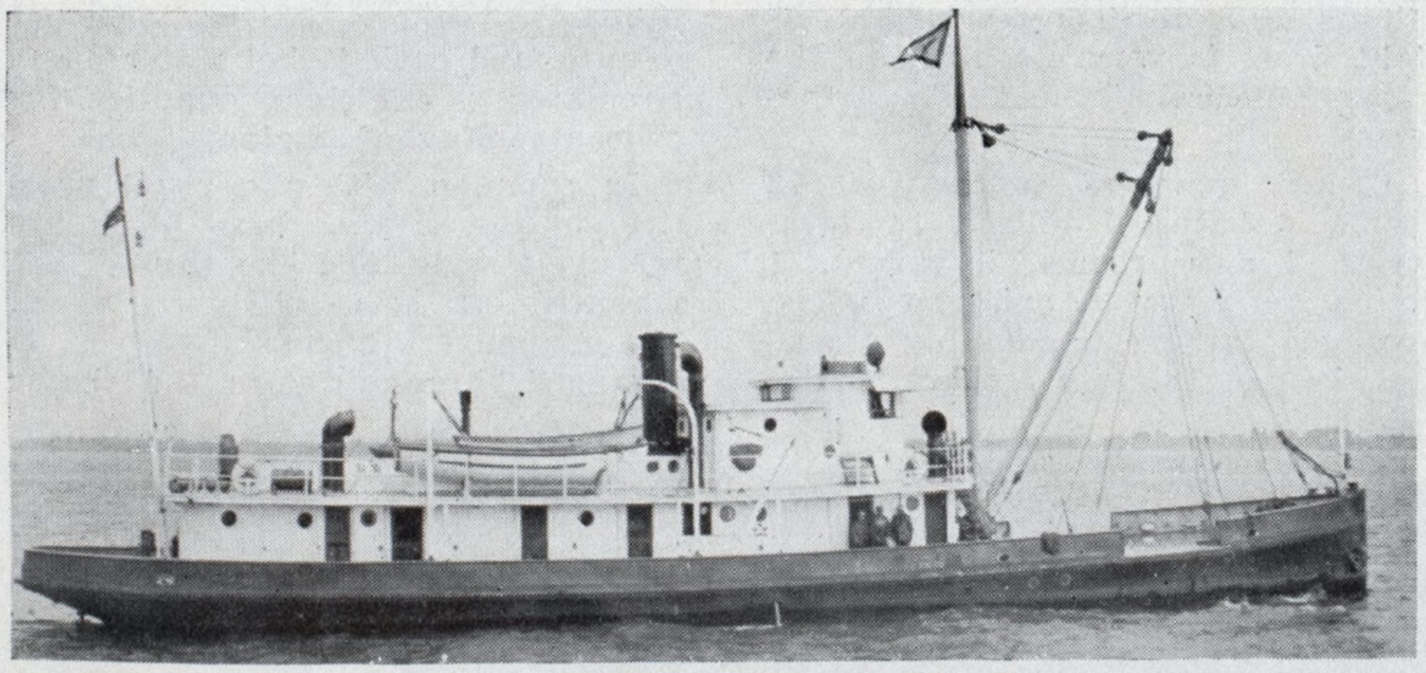
Contract for building the WISTARIA was awarded late in July, 1932, to the United Dry Docks Inc., New York, at a low bid of $129,900. Delivery was called for within 240 days.

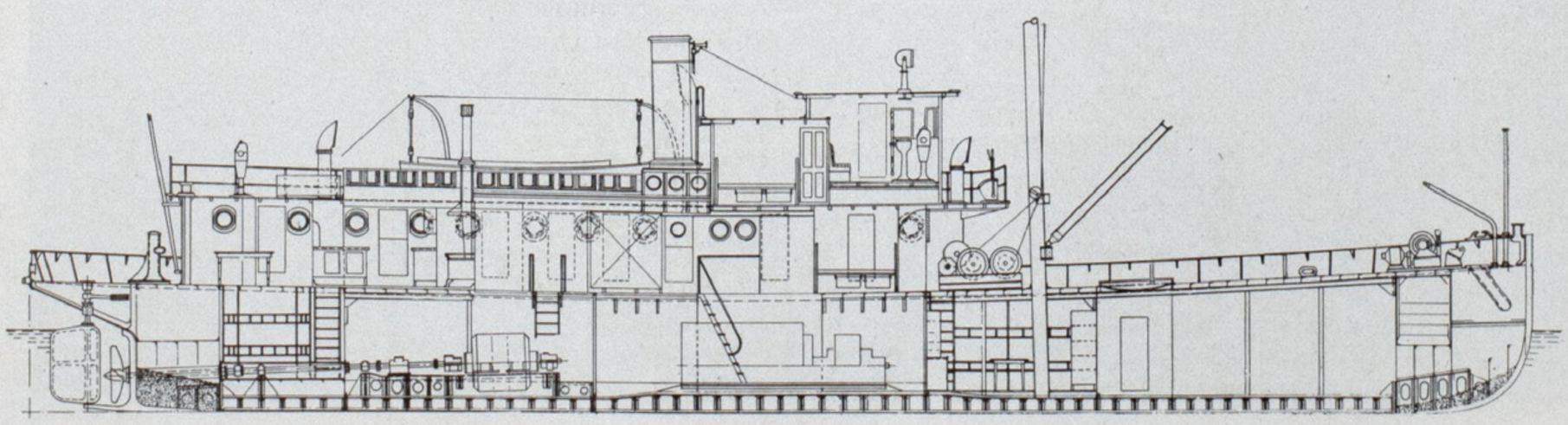
For heavy lifts there is fitted a 38-foot boom of 10 tons capacity, served by a four-drum, electric motor driven hoist of Lidgerwood design and construction.

The superstructure, of steel construction, is located mainly over the after half of the vessel, leaving a spacious foredeck for handling buoys and other lighthouse equipment. The pilot house is located on the forward end of the superstructure.

Complete control for the maneuvering of the vessel is possible from the pilot house. The propelling motor may be directly controlled from this point or locally in the engine room at the will of the operator.

By the use of diesel electric drive the utmost flexibility of operation is combined with minimum fuel expense.





SINGLE screw, diesel electric lighthouse tender Wistaria, built at the Staten Island yard of the United Dry Docks Inc.

Pacific Freight Market

A change for the better was observed in the Pacific freight and charter market for the month of May according to a statement issued by the chartering department of the General Steamship Corp. Ltd. While actual improvement has been more or less inclined to business between American ports, nevertheless, it is felt that with something at least approaching stabilization of exchange, this improvement will be extended to export business to foreign destinations.

At the moment, however, chartering for foreign ports is limited to spot orders as charterers, shippers and buyers abroad do not seem inclined to speculate on the future, but appear to be waiting stabilization of exchange before committing themselves for any large amount of future business.

TOM SAWYER

Twin Screw Diesel, River Towboat

THE TOM SAWYER is a twin screw tunnel type diesel engine propelled towboat recently completed under contract by the Midland Barge Co., Midland, Pa. for the Inland Waterways Corp. for service on the upper Mississippi river and its tributaries. This towboat was designed by the engineering department of the Inland Waterways Corp., under the direction of Major General T. Q. Ashburn.

Trials were conducted on the Ohio river near Midland, Pa., during the middle of May when thorough tests of all machinery and the maneuverability of the boat were proven satisfactory to the owner's representatives. The accompanying photograph was taken just previous to its trip down the Ohio to be delivered to its owner at Cairo, Ill.

The towboat is built to the following dimensions: Length, molded, 160 feet; breadth, molded, 40 feet 0 inches; depth at sides, 8 feet 0 inches; crown, 6 inches. The bow is modeled with sponson; and the stern is of tunnel type for propellers. The sheer forward is 14 inches, and the sheer aft is nil. The draft is 4 feet 6 inches fully stored including 50 tons of diesel fuel oil and 30 tons of fresh water.

Classification is with the American Bureau of Shipping and the vessel was constructed under a special survey of the bureau. The hull is of steel construction throughout. There are six transverse bulkheads extending from side to side of shell. A watertight center line bulkhead extends from forward end to after end of boat except in way of sunken deck of engine room through which a watertight keelson is constructed.

In way of the engine room sunken deck, longitudinal strength is obtained through the heavy guard decks, wing bulkheads, ship sides, and bottom plating, which form box sections five feet wide by eight feet deep on port and starboard sides of the boat.

Heavy engine foundation girders extend through the bulkheads at the forward and after ends of the sunken deck, the inboard girders connecting to longitudinal trusses are spaced midway between the wing and center line bulkheads. The sunken deck which is 30 feet by 26 feet long extends to the wing bulkheads and consists of transverse floors about 2 feet deep covered with removable sections of ¼-inch aluminum alloy plates.

Constructed of 3/16-inch and ⅛-inch plating the main deck house is reinforced by suitable angle iron stiffeners and divided into seven compartments by steel bulkheads. The upper deck house is constructed of long leaf yellow pine studding and tongue and groove cypress boards and is lined inside with ¼-inch pressed board. The hurricane deck is constructed of 2 x 6-inch deck beams and planked with 1⅝ x 5¼-inch tongue and groove yellow pine. The entire deck outside of pilot house is covered with No. 4 canvas thoroughly filled with lead paint. The pilot house is constructed of long leaf yellow pine and lined with pressed board.

Skylights over the engine room and galley, walkways and floor plates in engine room are all aluminum alloy to decrease weight, as light draft is very essential on the upper Mississippi and its tributaries.

Living quarters consist of 12 rooms, 6 baths, 7 toilets, 14 lavatories, 2 mess rooms, 1 pantry, 1 double refrigerator, and one galley, arranged for accommodating a normal crew of 18, with 5 spare berths. Two rooms with baths separate the galley personnel from the rest of the crew.

Diesel Propelling Machinery

The vessel is propelled by two vertical eight-cylinder four-cycle single acting mechanical injection direct reversing marine diesel engines of 12½-inch bore and 22-inch stroke, built by McIntosh & Seymour Corp., Auburn, N. Y., having a normal rating of 590 brake horsepower at 300 revolutions per minute and 675 brake horsepower at 330 revolutions per minute making a total of 1350 brake horsepower at overload rating. This power can be maintained for several hours without imposing undue strains on the engines.

Each engine is fitted with fly wheel, built-in thrust bearing, two stage air compressor gear type lubricating oil circulating pump, reciprocating jacket water circulating pump, attached speed governor, fuel transfer and booster pumps, fuel injection pumps. indicator motions, hand turning device, air intercooler and after cooler, air automatic unloading valve, and air pressure reducing valve.

Each Kingsbury thrust bearing is rated at 37,000 pounds. Each air compressor has capacity to supply air at 350 pounds for 6 starts of each engine per hour. Each lubricating oil circulating pump has capacity to supply 100 gallons per minute, and each jacket water pump circulates a sufficient quantity for proper cooling of engine.

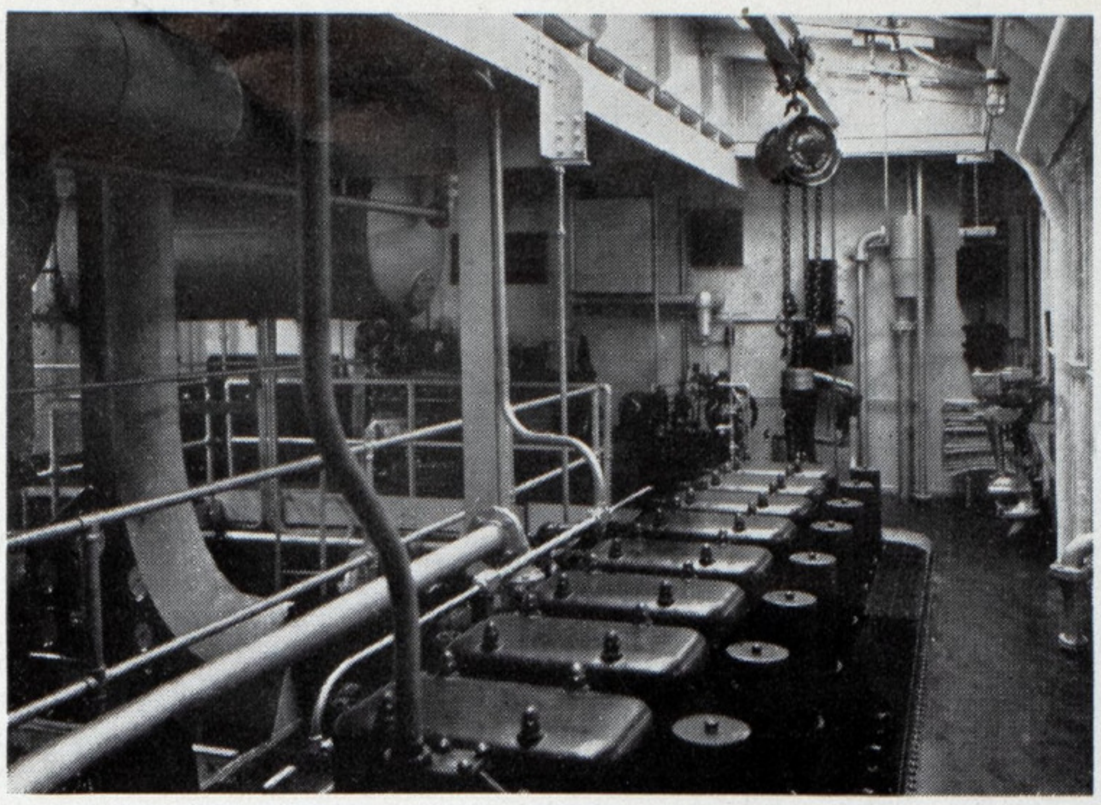
In common with the usual practice on the rivers, these boats are relatively wide, and the engines are mounted at some distance apart. The maneuvering gear, however, is arranged through shafts and chains

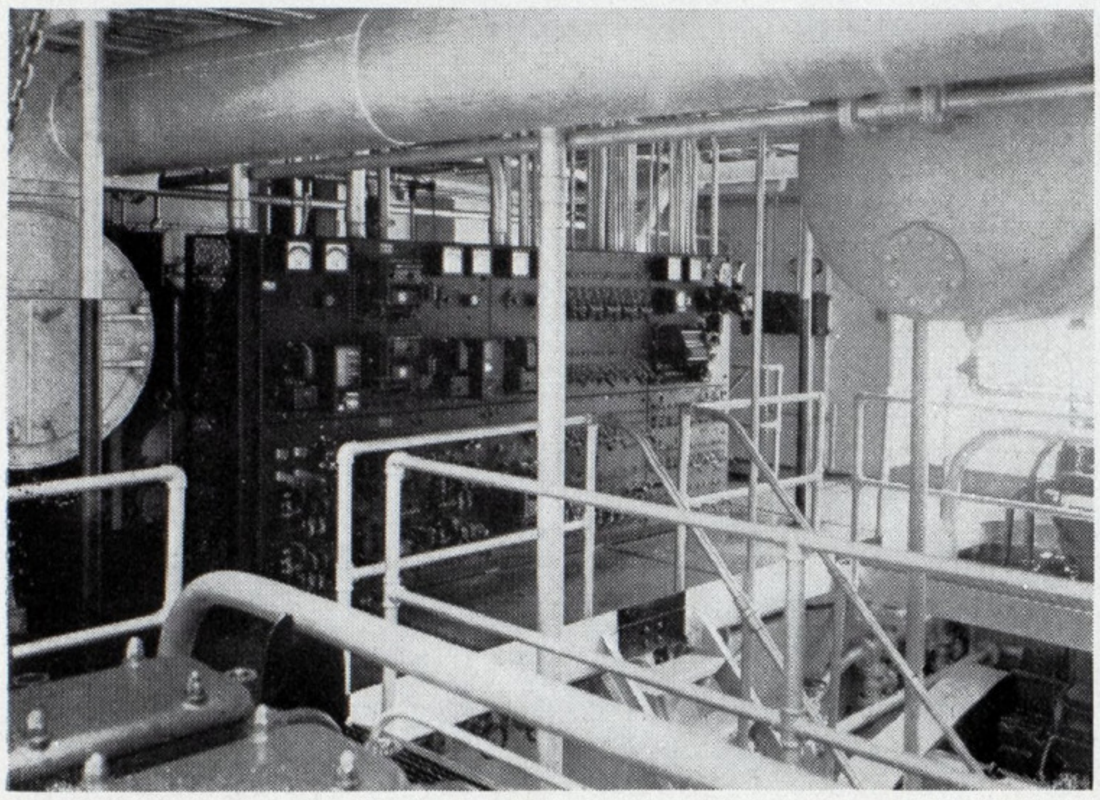
Tom Sawyer—twin screw, tunnel stern, diesel drive, river towboat, completed May, 1933, by Midland Barge Co., Midland, Pa., for Inland Waterways Corp. Speed 8 statute miles per hour. Sister boat Huck Finn to be completed July 16

so the two control stations are close together in the middle of the boat. The engine room telegraphs are mounted conveniently on these maneuvering stands, and in general this control is arranged so that one man can conveniently maneuver both engines. Control is also possible by an operator at each engine.

The design of the engines departs from the usual construction in that the joint between the base and the frame is carried up from the center line of the crank shaft to approximately the lower end of the cylinder liners. The base is of cast iron, and because of the height makes a very strong rigid member which assists materially in making a rigid engine and a rigid seating for the crank shaft. The main bearing supports are all bored out at a single setting to insure a uniform height of all of the supports for the main bearing shells. The single thickness in all shells is of material benefit when replacing any shells if this should become necessary.

Engine room of the Tom Sawyer, showing one of the two 8-cylinder diesel engines, direct connected to propeller. Both engines controlled from one station





Another view of the engine room of the Tom Sawyer, showing switchboard with power control system and automatic control devices. All auxiliaries are electric driven

Details of Engine Design

The location of the joint between the base and the frame at the proximity of the lower end of the cylinder liners makes it much easier to maintain an oil tight joint than it would be if this joint were located at the center of the crank shaft. The frame is a box-like structure into which are inserted the removable cylinder liners. The main function of this frame is to form a rigid support for the cylinder liners and to form a water jacket around these. The frame is bolted to the base by means of long studs which extend from the bottom of the frame down to the lower part of the main bearing supports in the base. This feature puts the metal in the base into a state of pre-compression, and in this way, reduces the deformation due to the combustion pressure to a minimum. The crank shaft is a solid forging with the crank pins and main bearings bored out to form an oil passage. These holes are bored relatively large which greatly reduces the weight of this shaft by removing metal which contributes only slightly to the strength of the part. The Kingsbury thrust collar is part of this shaft forging, and the Kingsbury thrust, itself, is part of the engine base.

The cylinder heads are equipped with dual air and exhaust valves which permit a very high volumetric efficiency, and to a large measure accounts for the excellent fuel economy and low exhaust temperature obtained with these engines. The heads are so designed as to get good water circulation around the exhaust valve seats, and, therefore, frequent grinding of the exhaust valves is not necessary.

The pistons are made of cast iron and are air cooled. They are provided with a sufficient number of rings to seal the gasses in the compression space, and in addition these pistons have provisions for two oil wiper rings. These rings prevent the lubricating oil from creeping up from the crank chamber into the combustion space and fouling the piston rings and valves.

The cam shaft is mounted in bushings which are pressed into the main frame. The cams are ground out from the solid forging. Two sets of cams are provided for each cylinder, one is for ahead, and the other set for astern. These two sets of cams are joined together by sloping surfaces, which permit the cam shaft to be moved endwise during maneuvering without removing the cam-rollers from the cams. The actual endwise shifting of this cam shaft for maneuvering is done by means of air rams which are mounted on each end of the cam shaft. The air for these rams is controlled by the reversing handwheel. The fuel injection system consists of "Bosch" pumps and nozzles. The fuel pumps are mounted on a separate pump body which is bolted to the side of the frame at the middle of the engine. The fuel pump cams are so made that a single cam suffices for both ahead and astern operation.

Lubrication of Main Engines

The engines are entirely enclosed and are completely lubricated by the pressure system. This includes lubrication of the push rods and rocker arms which operate the air and exhaust valves. Oil is supplied under pressure by means of an oil pump which is mounted in the engine base and is driven by a gear from the main crank shaft. This pump forces the oil through a cooler and then through an oil filter before it enters the engine. The oil is led to the main bearings and through suitable drilled holes to the crank pin bearings and through the connecting rods to the piston pin bearings. The oil is also introduced into the push rods and lubricates the rollers and valve lever mechanism. The cam shaft is also lubricated by this pressure system.

Performance of the engines both during the shop trials and the dock and river trials indicate that they should have a long life with a high degree of reliability and a minimum of maintenance. Due to the ruggedness and simplicity of design both the main engines and the auxiliary engines are well suited for towboat service where dependability

is of utmost importance.

The engine crank case is kept dry by a Viking rotary pump driven from the propeller shaft by a roller chain and arranged for reversing operation through check valves. A vee belt driving wheel is mounted on the forward end of the crank shaft.

Direct Connected To Propellers

Each main engine is direct connected to a propeller shaft on which is fitted an inboard turning propeller 5 feet 9 inches in diameter with four Dyson fan type blades having a total projected area ratio of 0.68 and designed to absorb 500 brake horsepower at 300 revolutions per minute and to give the vessel a speed of eight statute miles per hour. The large area ratio is necessitated by the large power to be absorbed, and the limited diameter due to shallow draft. Each engine is provided with an extra large exhaust silencer.

An unusual feature of the electrical generating system is that variable speed generators are driven through vee belts from the main engines and are automatically controlled to maintain constant voltage between 700 and 1200 revolutions per minute in either direction of rotation and to automatically switch on or off with the proper voltage differential between the bus and the generators. Either one of the above generators will operate on the main bus together with a 30 kilowatt auxiliary generator set while a 56 cell storage battery is "floating" on the bus. The batteries supply current when the speed of the belted generators is too low for supplying it, and the standby diesel driven generator will be used only to keep the battery in a charged condition when excessive loads are applied in the harbor.

Each vessel is also equipped with one 45 brake horsepower, 30 kilowatts, McIntosh & Seymour diesel engine driven generator set, with General Electric generator. The engine is of three cylinder, four cycle, trunk piston, mechanical injection, air starting type, of 5½ inch bore and 9 inch stroke, turning at 760 revolutions per minute, and direct connected to a single bearing generator. The generators referred to above, driven by belt connections from the main engines, are of 30-kilowatt capacity and 120 volts. These generators were also supplied by the General Electric Co.

The switchboard with all power control switches and automatic control devices was also supplied by the General Electric Co. and is equipped with Safety Car Heating & Lighting voltage regulators. The 56 cell storage battery is of Exide ironclad type with 286 ampere hour capacity at 8-hour discharge rate, supplied by Electric Storage Battery Co. The generators are all direct current.

Automatic alarm signals are provided for low jacket water pressure, low lubricating oil pressure and low condition of battery charge.

Auxiliary Machinery, Equipment

The TOM SAWYER and sister boat HUCK FINN are each equipped with latest design auxiliary machinery. Three heat exchanger units for cooling both jacket water and lubricating oil were supplied by the Alco Products Co. The 5 horsepower, electric motor driven raw water pumps, one for each heat exchanger, were furnished by Allis Chalmers Co. One 7½ horsepower electric driven stand-by jacket water pump of Goulds make is driven by a General Electric motor.

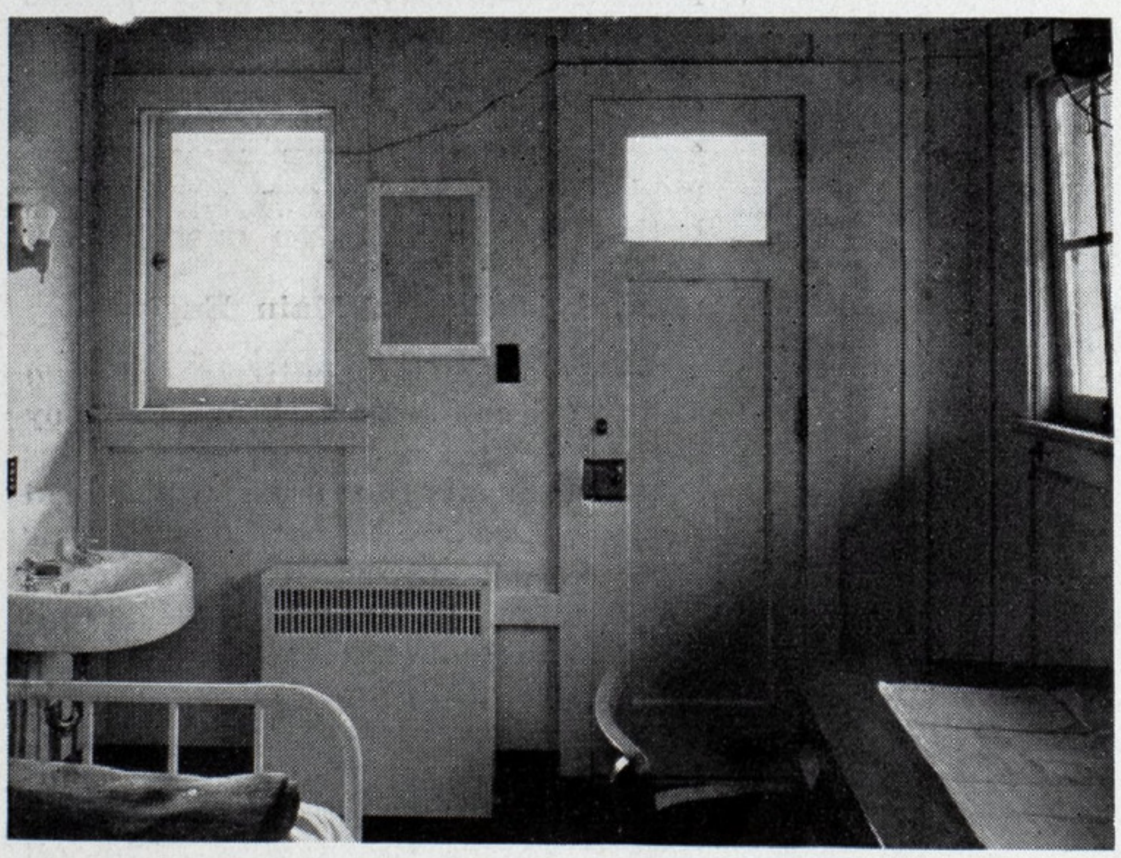
General Electric motors are also used to drive two 15 horsepower 2 stage, air compressors with inter and after cooling and automatic unloading valves. Each unit has the capacity to supply air at 250 pounds per square inch pressure for 36 starts of one engine per hour. The air compressors were supplied by the Sullivan Machinery Co. There are six air storage tanks, each of 31 cubic feet capacity; also, one small auxiliary air storage tank.

The American Engineering Co. supplied two 15 horsepower electric motor driven double barrel capstans and two 7½ horsepower electric motor driven gypsies. Both capstans and gypsies are driven by Diehl Mfg. Co. electric motors.

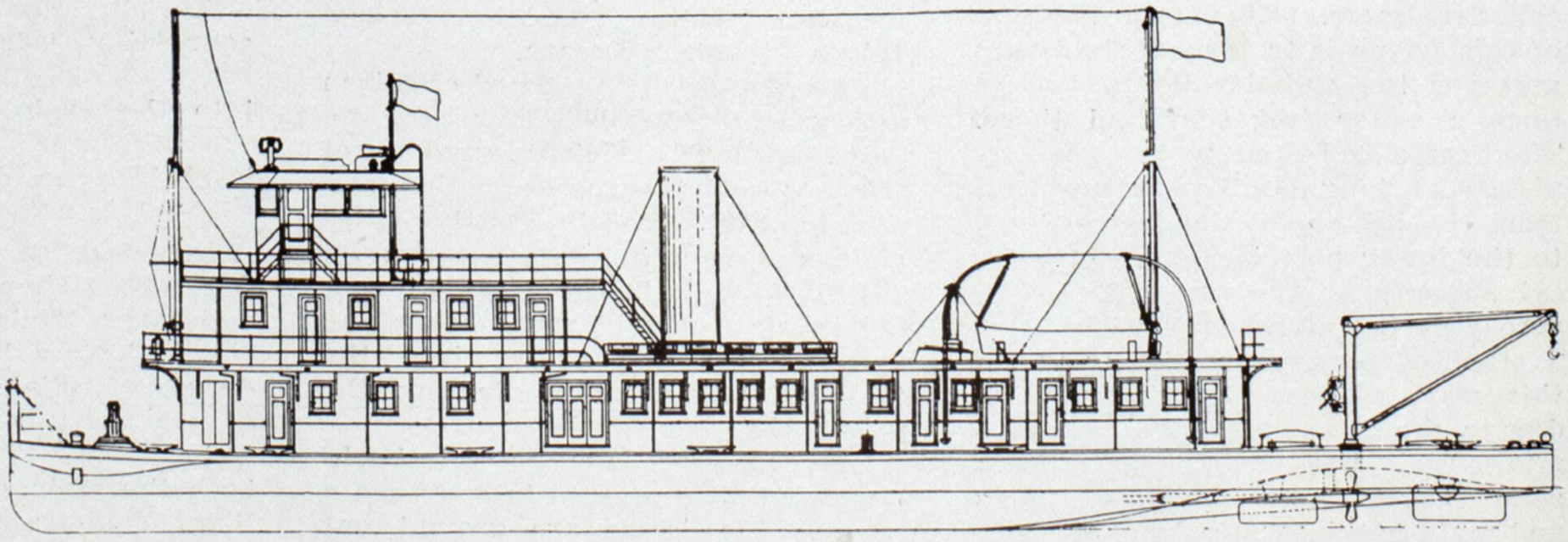
Two 5 horsepower electro-hydraulic steerers were furnished by the Hyde Windlass Co., and are driven by Diehl motors.

For the two-ton stern derrick there is one 3½ horsepower electric driven double drum hoist of Lidgerwood Mfg. Co. with General Electric motor.

Pumping equipment consists of one 3 horsepower electric driven bilge pump of self-priming type of Nash Engineering Co. make; one 10 horsepower centrifugal fire pump made by Worthington Pump & Ma-



Quarters of the chief engineer on the towboat Tom Sawyer. All living quarters are comfortable and convenient



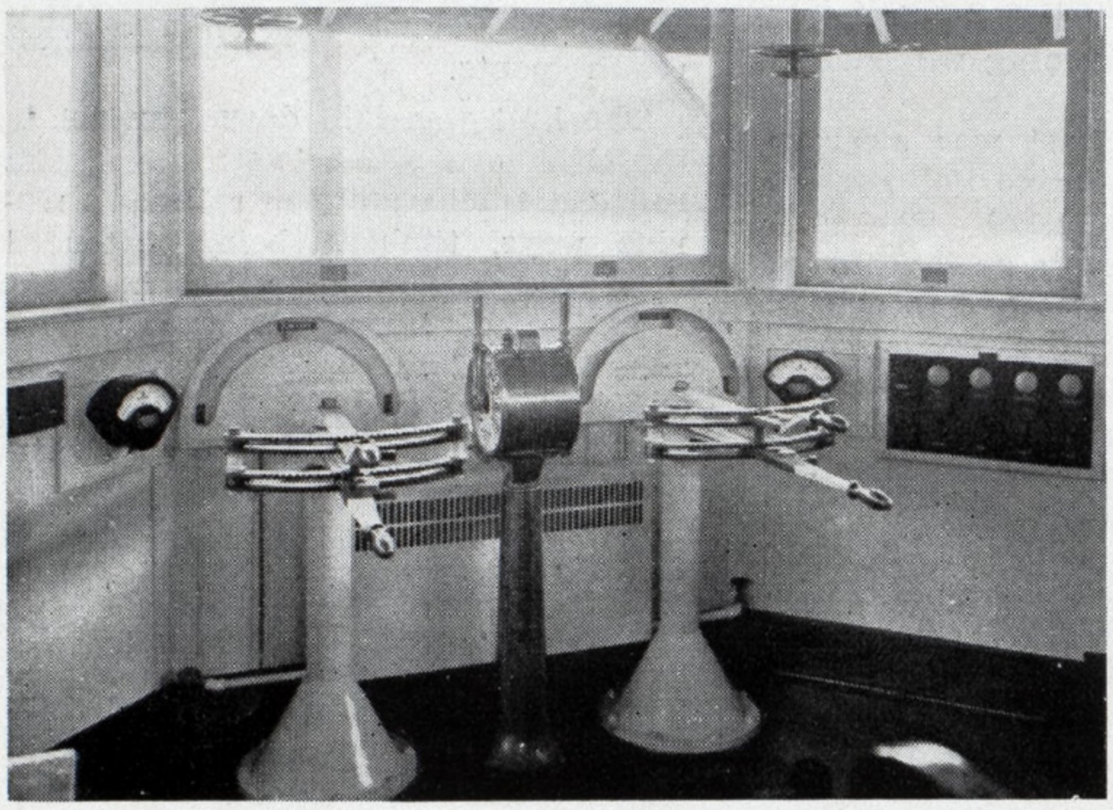
Outboard profile, Tom Sawyer. Development of tunnels to obtain shallow draft based on previous experience

chinery Corp.; one 5 horsepower lubricating oil stand-by circulating pump and one 1 horsepower fuel transfer pump both supplied by Perfection Pump Co. All of the above pumps are driven by General Electric motors. Three each of one-half horsepower, electric driven centrifuge oil pumps were supplied by the Viking Pump Co., and are driven by Westinghouse motors.

Two centrifuges for fuel oil are installed, each 150 gallon per hour capacity. There is also one lubricating oil centrifuge of 250 gallon per hour capacity. All three centrifuges were supplied by the Sharples Specialty Co., and are driven by Westinghouse motors.

Each vessel is equipped with one

Galley of river towboat Tom Sawyer fitted with oil burning range. Arrangement and equipment throughout are modern and efficient



Pilot house on Tom Sawyer. Controls for steering gears, and mechanical engine room signal gives the pilot complete command of the vessel

1½ horsepower, electric motor-driven ice machine of automatic unit type, supplied with a separate motor-driven cooling water circulating pump and connected to refrigerator and ice making box. This ice machine was supplied by the Baker Ice Machine Co., and is driven by a General Electric motor.

Among the machine tools fitted are one 3 horsepower, electric-driven lathe made by American Tool Works Co. with General Electric motor; and one 1 horsepower, electric-driven radial drill made by the Cincinnati Electric Tool Co.

One fire box type heating boiler, fired with Ray automatic oil burner, for supplying heat and hot water for the use of the vessel was supplied by the Kewanee Boiler Co. For hot water circulating there is one ⅛-horsepower electric-driven pump supplied by the Janette Mfg. Co.

The galley is equipped with one oil burning range supplied by Elisha Webb & Son Co. There is one ¼-horsepower electric motor-driven home water plant supplied by Fairbanks Morse Co.

A special designed radio transmitting set of one horsepower was supplied by the Westinghouse Electric & Mfg. Co. Two Carlisle & Finch Co. of 36 ampere, 19-inch carbon arc searchlights have been installed.

One outboard motor and work boat were supplied by Evinrude Co.

The fire extinguishing system of Lux type for flooding the engine room and oil tanks, consists of a battery of seven tanks and was supplied by the Walter Kidde Co.

For fuel and lubricating oil there are two 365 gallon fuel service tanks and two 400-gallon lubricating oil service and storage tanks.

The sister boat, an exact duplicate, the HUCK FINN, is under construction by the Midland Barge Co. and will be completed about July 15.

Transatlantic Travel

In earlies issues approximate figures have been published on passengers carried transatlantic during 1932, on several lines

The exact figures from conference report No. 34 are now available. Durin 1932 the Cunard group of steamships carried a total of 150,375 passengers in transatlantic traffic to and from United States and Canada. The North German Lloyd carried a total during this period of 117,062 passengers in these combined services. The Hamburg American line carried 54,844 passengers in the same period and services.

The total number of passengers carried to and from United States ports only during 1932 are given as 115,991 for the Cunard group; 116,416 for the North German Lloyd; and 54,764 for the Hamburg American line.

Examine Mail Contracts

On June 10 the United States senate adopted a resolution offered by Senator Black of Alabama providing $25,000 for an investigation of air and ocean mail contracts.

Investigations into the mail contracts, it is expected, will be held at Washington during the present recess of congress.

Boston Defends Engineers

Frank S. Davis, manager of the Maritime association of the Boston chamber of commerce, has brought to our attention a letter, sent to the President on May 26 by direction of the governing board of the association, protesting transfer of rivers and harbors work from the army engineers to the department of interior.

The letter to the President points out that the Maritime association of the Boston chamber of commerce representing shipping interests of New England as well as financial, commercial and industrial interests of that section, is well informed about the work of the army engineers. It is the opinion of the association that the work has been honestly and efficiently carried out under their jurisdiction and that work can be most economically handled by the corps of engineers.

It is, therefore, the hope of the association that this work will be so continued rather than to have it consolidated under the jurisdiction of the department of the interior. Such a change the association figures will cause confusion, delay and unnecessary cost, and would, therefore, be injurious to the commerce and industry of New England.

Nenana, Alaska Stern-wheeler for Freight, Passengers

By Robert C. Hill

FOR service on the Tanana and Yukon rivers, as a unit of the Alaska Railroad's transportation system, the stern-wheel shallow draft steamer NENANA was launched at Nenana, Alaska, May 18. Not only is the vessel of unusual type but the conditions under which she was constructed are out of the ordinary.

The new stern-wheeler replaces the smaller steamers ALICE and GENERAL JACOBS and will furnish freight and passenger service between Nenana and Marshall. The former is on the Tanana river which about 100 miles below joins the mighty Yukon, the distance thence to destination being about 600 miles additional. Operation is possible only during the short summer. The rivers present many obstacles and dangers. Shifting channels, sharp turns, swirling eddies and in places lack of draft are conditions which must be overcome. The NENANA was designed with this in view.

While it would have been possible to send the vessel completed by water to Alaska, the Alaska railroad desired to furnish employment in the territory. Consequently the materials were shipped from Seattle to Seward by regular steamship line, thence transported 450 miles over the Alaska railroad to Nenana. Here the craft was assembled and completed. It was stipulated that all labor, except that of skilled mechanics and foremen, must be performed by residents of the territory. Considering the distance material and equipment had to be transported and the fact that much of the construction was done in extremely cold weather in the sub-arctic, the feat was a difficult one.

W. C. Nickum, Seattle naval architect, designed the vessel and prepared all the detailed working drawings, keeping in mind the peculiar requirements of the river service. The completed craft is ideally suited to the route, according to government officials. The architect's task was to plan a vessel of specified freight and passenger capacity, on a limited draft, at the same time keeping within designated cost limits.

The general contract was awarded to the Berg Shipbuilding Co., Seattle, on a low bid of $131,126. The completed vessel represents an investment of about $175,000. Work was started July 15, 1932, and materials were supplied as needed, although most of the equipment was forwarded before winter began. By September the hull was well along and when cold weather came the job was enclosed. Work was continued during the winter, frequently with the temperature more than 40 degrees below. A steam line was run in the main deck and to the saloon deck so that the men worked in comparative comfort. The river ice moved out on May 8 but to avoid ice floes the NENANA was not sent into the water until ten days later, completed, ready for service.

Principal dimensions are: Length overall, 237 feet; length between perpendiculars, 210 feet; beam, 42 feet; depth 6 feet; draft, 3 feet 6 inches. There are accommodations for 54 passengers, in 27 staterooms. The vessel's light draft is 22 inches mean. With 300 tons of cargo the draft is 3 feet 6 inches forward and 3 feet aft.

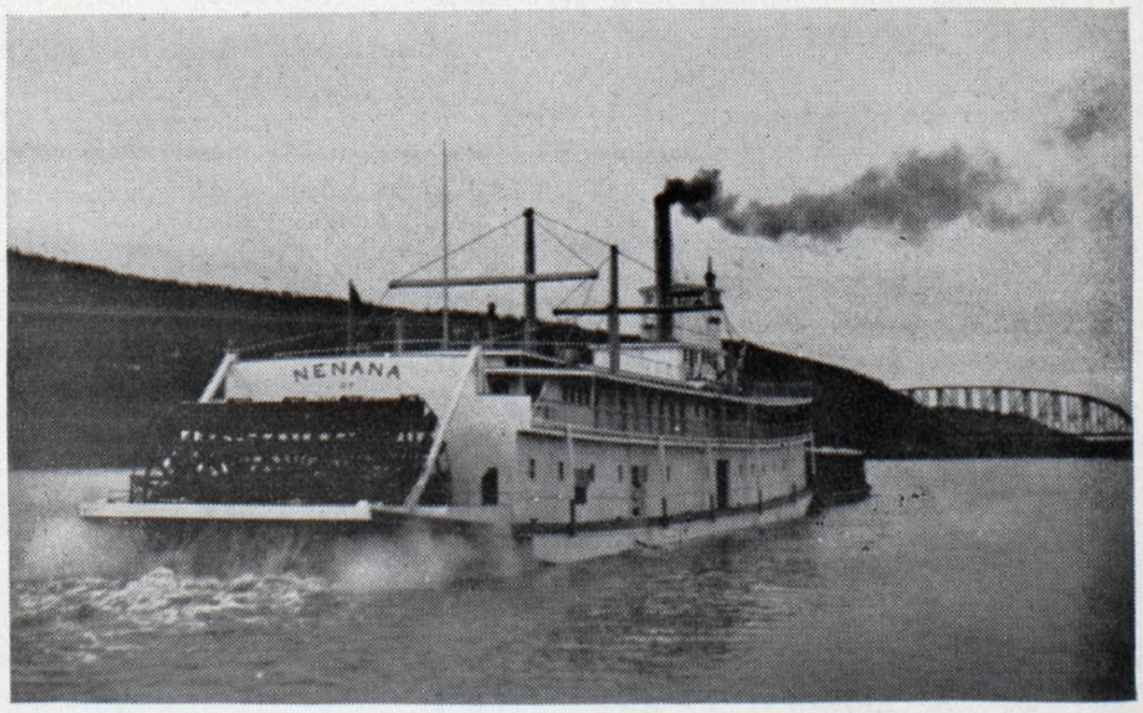
Hull and upperworks were built to the approval of the American Bureau of Shipping as were also the machinery and auxiliaries. Materials were surveyed and approved in Seattle by the bureau. The NENANA is fully equipped to conform with United States steamboat inspection service requirements.

The hull was laid down parallel to the river on a site between the Alaska railroad tracks and the railroad's marine ways, timbers being extended from the ways under the hull. At the time of launching the wedges were knocked out and the vessel glided smoothly across the ways sideway on batter boards running along the greased skids.

While some of the material was fabricated and prepared prior to shipment, much of it was cut to measure and finished on the job. The hull is of Douglas fir and the superstructure of spruce and cedar. Above the main deck the house framing and deck beams are fir sheathed with cedar. The house ceiling is of three-ply veneer and the stateroom and saloon bulkheads are of five-ply veneer. The thwartship bulkheads are solid pieces of five-ply veneer, giving exceptional strength to the entire structure.

Because of the abundance of firewood and the high cost of coal or fuel oil, the NENANA was designed to burn spruce and birch cordwood. The boiler is of locomotive type, 25 feet 5 inches in length overall, and is designed for steam at 225 pounds per square inch working pressure and 100 degrees Fahr. superheat. The superheater, with 78-inch drum, was supplied by the

Stern wheel river steamer Nenana on the building ways at Nenana, Alaska. Material for building and equipment shipped from Seattle



Alaska railroad steamer Nenana now in service, on trial run on the Tanana river, Alaska. Her run is between Nenana and Marshall, a distance of 700 miles

Superheater Co., New York. The furnace is 9 feet 1½ inches inside diameter with a heating surface of 2239 square feet. The ordinary tubes are 2¼ inches in diameter and the tubes for the superheater are 5 inches in diameter.

The Washington Iron Works, Seattle, which built the boiler, also had the contract for the propelling machinery, consisting of two tandem, horizontal, compound steam engines. These engines are of the poppet valve type with reheater between the high and low pressure cylinders. The propelling unit was designed especially for the unusual conditions of service. The high pressure cylinder is 17 inches in diameter, the low pressure is 28 inches in diameter, and the stroke is 72 inches. The engines operate at 16 revolutions per minute.

The surface condenser and the 15 kilowatts generator are of Westinghouse make. Worthington Pump & Machinery Co. furnished the air, circulating, feed, fire, sanitary and steering gear pumps. A York ice machine is a part of the equipment. The water filter with capacity of 7200 gallons per day was supplied by the Shibley Co., Seattle. The river water is so muddy and impregnated with vegetable matter that it is unfit either for boilers or cooking without treatment.

The stern paddle wheel is 19 feet 6 inches in diameter and carries 16 floats, each 26 feet in length, of Douglas fir. The framing is built of iron. The wheel shaft is 15 inches diameter with a 6¼-inch hole.

Hydraulic and hand steering gears are installed. A horizontal duplex oil pump maintains hydraulic pressure. There are four main and two monkey rudders.

All piping in excess of 2½ inches was laid off by the architect and the flanges were fitted and pipes bent to shape in Seattle. Everything was so accurately done that there was no delay in assembling on the job.

The derrick mast forward is equipped with a 5-ton cargo boom and double spur geared winch with drum for cargo hoist and four independently operated gypsies for lining up, built by the Washingon Iron Works.

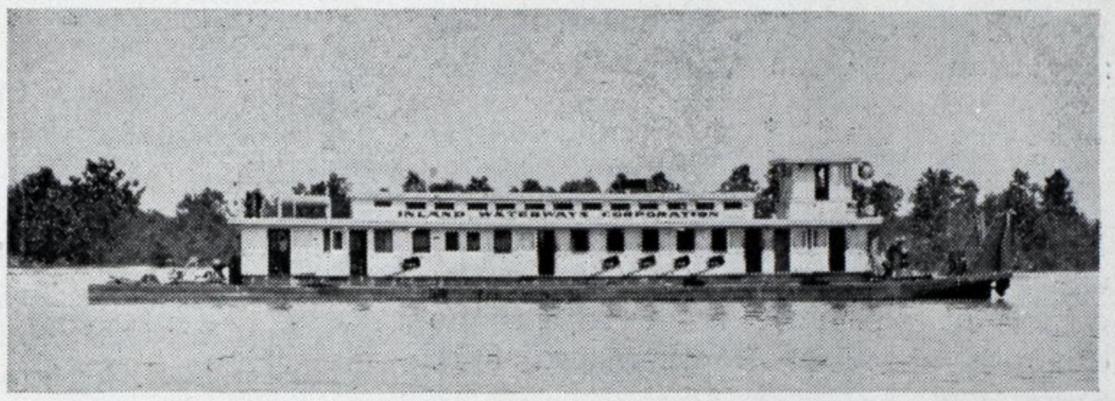
The saloon and cabins are comfortable and attractively finished. The windows are of teak trim and in the dining room mahogany pilasters add to the pleasing effect. The social hall is finished with mahogany paneling.

In addition to furnishing engines and boiler, the Washington Iron Works built the stack, breeching and steering gear. Isaacson Iron Works, Seattle, had the contract for hog chains, rudders, chocks, cleats and other deck fittings. Pacific Marine Supply Co., Seattle, supplied paint and equipment and the Seattle Plumbing Supply Co. had the contract for steam piping and valves.

Diesel Towboat for Illinois, Chicago Rivers

THE diesel towboat, WM. T. WARNER has been chartered by Major General T. Q. Ashburn, president of the Inland Waterways Corp. for use on the upper Illinois and Chicago rivers. The WM. T. WARNER was built in Memphis, Tenn., this year by Capt. Russel Warner, secretary-treasurer and general manager of the Wolf River Transportation Co., Memphis. The accompanying illustration shows the WARNER before she left Memphis on her maiden trip to Peoria, Ill.

It had been arranged to have the WARNER meet the newly built towboat TOM SAWYER (described on page 16) of the Inland Waterways Corp. at Peoria or Peru, Ill., and take from it the first "lakes to gulf" barges of the corporation and tow them into Chicago. This tow left New Orleans on May 31, 1933, and was scheduled to arrive in Chicago on or about June 22.



W. T. Warner, diesel towboat, built at Memphis, Tenn., this year. Chartered for upper Illinois and Chicago river service

Hull Is Built of Steel

The WARNER has a gross tonnage of 104 and a net tonnage of 52 tons. Her length is 99 feet 6 inches, beam 17 feet 0 inch, and depth 7 feet 0 inch. The draft of hull is 5 feet 6 inches with a maximum draft of 7 feet at the rudder shoe. The hull is constructed of steel ¼-inch thick, divided by three thwartship bulkheads into four watertight compartments, while the cabin is constructed of wood.

The propelling machinery consists of one 600 horsepower six-cylinder Winton, four-cycle, solid injection, marine diesel engine, turning a three-bladed 78-inch diameter, by 66-inch pitch, steel propeller at 250 revolutions per minute. The cylinder bore of the main engine is 15½ inches and stroke is 22 inches. The fuel oil consumption is approximately 31 gallons per hour.

A Kingsbury thrust bearing is provided. Forced feed lubrication is used throughout the main engine. There is one air compressor on the main engine, along with three auxiliary air compressors. Six air storage tanks are provided, also one Winton 10 kilowatt light engine, one Delco light plant, ten fuel oil tanks (10,600 gallons total capacity), two fresh water storage tanks for drinking and cooking water only, (180 gallons capacity), and water storage tank in fore peak for main engine cooling water.

Deck guards are 42 inches wide and a steel coaming 14 inches high extends above the main deck, preventing wash from entering the boat.

Can Lower Pilot House

An interesting feature of the boat is the pilot house which, by means of a hydraulic ram, can be raised or lowered vertically. When the pilot house is in its raised position, it has a clearance of approximately 19 feet 6 inches above the water line, and when lowered into its pit the pilot house roof is 13 feet 6 inches above the water line. This low height is required because of the low vertical clearance afforded by the numerous bridges in the Chicago district, while when the pilot house is raised the pilot is able to see over the tops of the barges being pushed by the towboat while on the open river.

The quarters consist of five staterooms, dining room, galley, two toilets, wash room and a shower bath. The galley range operates with fuel oil. One 14 cubic feet Frigidaire refrigerator is located in the galley. Accommodations are provided for a crew of 14 men. Five staterooms are available for passengers.

One 16 Westinghouse aerial beacon incandescent searchlight is installed on the pilot house and four flood lights are provided, two on upper deck alongside pilot house and two on after end of cabin.

The deck equipment consists of one gasoline driven capstan, one towing bitt, four towing straps, four cavels on both port and starboard sides, two towing cavels on bow, two towing knees on bow, and two hand operated capstans on stern. There are three all-steel rudders, one steering and two backing, operated by a Gardner steering gear equipped with oil brakes.

Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review
By Harry Bowne Skillman
Attorney at Law

IN THE case of WELFARE, 1 F. Supp. 585, the commissioner in his findings fixing the value of the barge before and after its grounding in 1930 and the damage thereto, based his conclusion as to market value on sales of similar barges. Objection was made on the ground that because of the decreased condition of business there was no such person as a "willing seller." The court sustained the commissioner, saying that if the objection were sound, there would never be sales sufficient to establish market value during a falling market, or times of business depression; "when a man sells something because he wants to, he is a willing seller, that is, he would rather sell than continue to own."

* * *

A VOYAGE, as respects the vessel's liability for error in management, commences as to the cargo owner at the port from which the cargo is shipped.—LUCKENBACH, 1 F. Supp. 692.

* * *

ON DELIVERY and stowage of cargo on shipboard, the ship became bound to the cargo and the cargo to the ship. The vessel, a common carrier, a commerce ship carrying cargo for hire, was bound to receive and carry tendered cargo for just compensation over its regular route, and to transport such cargo without unreasonable delay. This duty was imposed by the common law, and is imposed for the common good, irrespective of contract. Failing to discharge this duty, the shipper had election to sue the ship in tort or pursue his remedy on contract.—PACIFIC SPRUCE, 1 F. Supp. 593.

* * *

WHERE a hatchway was so located as to be near the path of those who had occasion to pass to and from the vessel, a duty was imposed upon the ship to make the pathway reasonably safe for the purpose for which it was expected to be used, and if the hatchway was open to provide reasonably safeguard and protection in accordance with the usages, customs, and ordinary requirements of the ship's business so that the passageway near it would be rendered reasonably safe. "There was no obligation," said the court in the case of QUAKER CITY, 1 F. Supp. 840, "to make of the deck near the hatchway a 'squared circle' safe against the mishaps which might befall battling pugilists."

* * *

MAINTENANCE and care of an injured seaman comprehended sustenance and care for a reasonable period of time following the injury, and what amounts to or constitutes a reasonable period depends upon the condition in each individual case. Such period does not necessarily end with wages or the voyage.—JAMES E. FERRIS, 1 F. Supp. 1018.

* * *

THE obligation of a ship for cure and maintenance is aside from all thought of tort, negligence, or fault. "The principle," it was declared in QUAKER CITY, 1 F. Supp. 840, 'is really one of necessity backed by humanity." In holding that where injury to a seaman, not on ship's business, is brought about by his gross misconduct, ship is relieved from liability for cure and maintenance, and that right to cure and maintenance depends upon whether the seaman, at the time of injury, was in the general service of the ship, the court said: "Members of the crew have no haven other than the ship. If sickness or hurt befalls them, what can be done? They cannot be left to die or be fed to the sharks. The ship must per force take care of them. There is likewise the humanity appeal which runs into the same necessity. It would be inhuman to leave a helpless man without succor. Some one should give him aid. Who other than the ship? * * * The sailor must, of course, be in the service of the ship or there is no obligation, but it does not follow that he loses the right to cure and maintenance unless he is actually at work when sickness or hurt comes upon him. * * * It is always to be kept in mind that the obligation is not founded upon any fault of the ship. It is further to be noted that the right to cure is not because the injury or sickness was due to the mere fault of the seaman." The court then held that the fact that a seaman at the time he fell down a hatchway was drunk did not defeat recovery from the ship for cure and maintenance.

THE owner of a passenger vessel may not relieve himself of all liability, or limit his liability, to passengers, merely by purchasing a vessel, without any examination by him to ascertain whether it is in fact seaworthy, or whether it is properly equipped in accordance with law. In other words, the mere purchase of a ship and the delivery thereof by the owner to the master, is not a compliance with the law, and does not entitle him to limit his liability for injury to passengers resulting from defects in the structure or the equipment of the vessel. It is the owner"s duty in the first instance to see that the vessel is properly equipped and seaworthy.—PRINCESS SOPHIA, 61 F. (2d) 339.

* * *

BY THE general maritime law, it was declared by the Supreme Court of the United States in the case of Cortes v. Baltimore Insular line, 53 Sup. Ct. Rep. 173, a seaman is without a remedy against the ship or her owners for injury to his person, suffered in the line of service, with two exceptions only. A remedy is his if the injury has been suffered as a consequence of the unseaworthiness of the ship or a defect in her equipment. A remedy is his also if the injury has been suffered through breach of the duty to provide him with "maintenance and cure." The duty to make such provision is imposed by the law itself as one annexed to the employment. Contractual it is in the sense that it has its source in relation which is contractual in origin, but, given the relation, no agreement is competent to abrogate the incident. If the failure to give maintenance or cure has caused or aggravated an illness, the seaman has his right of action for the injury thus done to him; the recovery in such circumstances including not only necessary expenses, but also compensation for the hurt. On the other hand, the remedy for the injury ends with his death in the absence of a statute continuing it or giving it to another for the use of wife or kin. Death is a composer of strife by the general law of the sea as it was for many centuries by the common law of the land. Under the merchant marine act of 1920, a seaman's administrator may recover for death caused by the master's failure to give the seaman proper care during illness.

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	255	1,573,337	244	1,513,231
April	232	1,330,774	232	1,311,863
March,	243	1,466,812	264	1,536,778
February	237	1,373,856	236	1,380,867
January	254	1,416,857	245	1,383,630
December	**244**	**1,307,332**	**253**	**1,387,341**
November	227	1,154,961	232	1,175,988
October	253	1,379,283	244	1,328,561
September	258	1,634,448	266	1,658,521
August, 1932	287	1,754,583	270	1,636,803

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	58	157,704	49	141,334
April	63	193,946	41	131,990
March	60	192,817	43	141,445
February	38	105,262	20	56,395
January	53	154,823	41	142,216
December	**44**	**141,426**	**37**	**116,120**
November	54	154,796	41	130,250
October	57	167,539	42	115,660
September	45	123,049	36	99,766
August, 1932	64	175,530	43	113,901

Boston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	111	295,854	83	254,667
April	86	271,864	69	226,862
March	85	259,203	65	240,768
February	83	285,162	53	191,084
January	97	329,575	56	211,428
December	**98**	**300,132**	**64**	**241,693**
November	88	308,164	59	220,530
October	99	332,754	68	249,150
September	114	337,608	91	283,227
August, 1932	117	369,799	103	339,775

Portland, Me.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	13	19,020	13	23,395
April	5	9,254	5	7,387
March	9	24,186	10	23,989
February	19	52,001	19	48,913
January	14	35,038	13	34,153
December	**17**	**43,705**	**16**	**40,396**
November	7	9,785	6	10,174
October	8	21,407	7	18,228
September	9	14,698	9	16,526
August, 1932	14	25,844	14	24,208

Providence

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	3	10,490	3	3,834
April	8	30,156	2	5,650
March	4	17,052	....	.....
February	7	27,520	1	4,393
January	2	7,473	1	3,171
December	3	7,918	2	8,820
November	4	13,673	3	11,066
October	3	13,133	3	9,683
September	3	11,450	4	14,471
August, 1932	5	13,418	1	5,071

Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	25	98,688	28	105,115
April	17	67,220	24	97,104
March	20	79,537	43	162,970
February	25	97,554	34	130,014
January	24	95,271	33	138,372
December	22	92,267	41	166,858
November	19	78,628	41	157,544
October	25	98,792	45	182,167
September	25	98,370	37	146,945
August	22	93,256	32	127,572
July, 1932	21	84,961	24	99,035

Baltimore

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	79	237,046	78	229,333
April	63	198,940	58	178,957
March	72	228,806	72	223,594
February	63	195,299	75	226,672
January	77	247,903	78	252,052
December	75	238,598	68	224,544
November	80	254,047	83	262,796
October	98	281,907	94	281,534
September	66	190,459	80	241,287
August	88	243,077	87	245,091
July, 1932	88	255,354	86	255,209

Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	18	33,521	32	68,941
April	14	39,010	36	100,485
March	18	56,097	42	111,038
February	16	49,213	36	82,544
January	20	58,470	33	76,493
December	28	77,286	38	92,621
November	20	54,678	35	79,516
October	15	60,775	36	80,792
September	26	74,483	53	118,437
August, 1932	25	53,025	37	86,952

Jacksonville

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	5	13,102	9	16,275
April	3	8,297	8	20,260
March	7	18,536	9	18,137
February	6	15,126	7	13,454
January	3	4,683	8	21,018
December	10	24,067	10	24,595
November	10	24,352	2	1,799
October	8	16,714	8	13,659
September	7	15,879	7	12,539
August, 1932	8	14,142	9	16,647

Key West

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	41	55,097	39	59,075
April	41	50,121	35	47,458
March	42	57,720	39	54,508
February	37	52,615	34	49,320
January	38	55,322	38	54,692
December	38	59,058	39	58,604
November	37	64,384	37	61,961
October	35	62,394	35	62,394
September	36	60,309	36	61,405
August, 1932	37	66,432	37	66,313

Mobile

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	95	210,743	105	231,000
April	105	209,469	109	235,429
March	96	234,328	91	206,064
February	80	184,669	83	200,850
January	100	232,451	91	201,671
December	86	204,295	92	209,061
November	94	210,195	97	234,590
October	105	228,041	105	233,510
September	89	166,896	96	193,213
August, 1932	90	196,453	88	188,375

Seattle

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	37	149,245	38	164,025
April	41	188,899	40	180,517
March	47	194,485	51	216,803
February	43	196,979	43	190,338
January	50	212,954	49	210,083
December	45	202,731	47	207,521
November	43	193,530	45	200,513
October	53	235,224	58	251,334
September	40	168,740	40	175,635
August, 1932	39	183,141	36	167,807

New Orleans

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	150	444,982	151	434,952
April	142	409,411	154	416,833
March	161	464,728	161	457,880
February	128	378,040	127	366,948
January	135	307,750	145	410,412
December	151	434,935	157	450,545
November	146	442,427	156	457,621
October	140	403,062	150	424,621
September	151	423,791	139	415,704
August	160	448,826	156	442,655
July, 1932	166	438,496	171	448,198

Charleston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	21	53,125	20	49,888
April	19	49,280	20	52,449
March	35	99,612	29	83,243
February	24	65,228	24	65,218
January	28	83,545	23	65,063
December	24	58,943	24	63,086
November	33	93,457	30	85,072
October	14	33,693	12	34,625
September	21	54,638	20	52,035
August, 1932	15	29,293	18	46,756

Galveston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	27	58,632	86	261,124
April	27	64,360	73	215,020
March	19	34,677	83	239,683
February	17	29,935	69	200,485
January	23	43,723	79	235,748
December	24	39,491	103	311,999
November	29	64,016	102	314,452
October	26	54,231	94	277,977
September	25	38,083	85	236,532
August	29	44,389	71	202,598
July, 1932	27	50,302	79	220,489

Los Angeles

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	190	600,184	185	630,905
April	178	625,508	190	614,741
March	152	550,205	167	599,191
February	143	528,613	155	543,628
January	162	633,944	169	668,576
December	152	538,392	156	560,901
November	194	645,826	195	662,569
October	209	641,131	201	657,641
September	223	581,402	222	610,443
August, 1932	253	653,836	244	635,164

San Francisco

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	160	717,412	161	680,493
April	138	733,163	150	652,593
March	145	667,902	156	693,893
February	145	658,005	144	621,439
January	154	672,230	147	657,934
December	135	608,843	170	579,362
November	154	672,184	152	655,379
October	147	669,637	166	727,969
September	136	608,268	153	667,866
August, 1932	152	640,952	162	702,483

Houston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1933	32	127,718	43	164,896
April	20	80,016	29	103,049
March	16	71,995	28	101,486
February	20	71,711	28	95,755
January	19	72,798	33	110,421
December	13	45,319	30	95,323
November	22	86,895	28	106,050
October	21	81,274	37	136,509
September	23	103,424	33	121,134
August, 1932	11	47,148	32	116,860

Note: The figures given in this table are for direct entrances and clearances. Additional vessels in foreign trade enter and clear from and to other American ports after original entry and before final departure. At the port of Philadelphia, for instance, additional vessels in the foreign trade in this category were 81 of 268,773 net tons entered and 79 of 265,187 net tons cleared for the month of May.

Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

SHIPYARDS and builders of marine equipment are facing a period of activity unparalleled in recent years. Under the terms of the bill for the control and revival of industry which became law with the signature of the President on June 16, a total of $238,000,000 is now available for a naval building program calling for the construction of 32 vessels within a period of three years.

Utmost speed in beginning work is the aim of the administration. In a statement issued by the President on June 16, after he had signed the bill, he said in referring to the naval program: "I have also just made available over $230,000,000 for the navy to start building ships under the London treaty." On June 19 the acting secretary of the navy, announced that the department would open bids for the construction of 17 war vessels on July 26. Vessels on which bids are to be taken include two aircraft carriers, not to exceed 20,000 tons; one heavy cruiser of 10,000 tons with 6-inch guns; one light cruiser; four torpedo boats not over 1850 tons; seven torpedo boat destroyers of the 1500-ton type and two submarines.

Work for Private Yards

The announcement as reported also definitely stated that all of these 17 vessels are to be constructed in private yards. Every indication now points to a large volume of work just as soon as the necessary details in connection with asking and receiving bids can be worked out. The disposition of the government, taking its cue from the President, is not to delay one minute longer than is absolutely necessary the beginning of actual work.

Secretary Swanson, has been reported, as hopeful that the program will be under way by Aug. 1. He believes that the navy can build to the fullest capacity of both private yards and navy yards for two years. Present plans call for completing the entire program within three years, beginning with an expenditure of about $48,000,000 the first year, $105,000.000 the second year, and $85,000,000 during the third year. The following vessels are to be built

Number	Type	Displacement
2	Aircraft carriers	30,000
4	Cruisers	40,000
4	Destroyers	7,400
16	Destroyers	24.000
4	Submarines	5,600
2	Gunboats	4,000
Total 32		111,000

The secretary of the navy made it clear that the 32 vessels listed above, to be built under the authority of the national industrial recovery act, do not include vessels now under construction at private shipyards and navy yards covered by the appropriations for the fiscal year 1934. He also pointed out that there is a total of 17 vessels now under construction, 11 of these at navy yards and 6 at private shipyards. Also outside of this program are the four destroyer leaders on which bids are to be taken July 6.

Building in Navy Yards

In recent years it has been the policy of the navy department to divide construction of new naval vessels evenly as between private shipyards and navy yards. The fact that bids on 17 vessels of this new program will be requested from private shipyards seems to indicate that a similar policy is to be followed. This will mean that all of the navy yards equipped to build new vessels are likely to receive orders for some part of the new program. The navy yards that come to mind in this connection are: those at New York, Philadelphia Boston and Portsmouth N. H., all on the Atlantic seaboard, and Mare Island, Vallejo, Calif., and Puget Sound, Bremerton, Wash. The Washington navy yard, Washington, D. C. will be very active in building armament.

The additional new naval vessels called for in the new program falls far short of bringing the United States up to treaty limit. A recent authoritative estimates of naval requirements indicates that the United States is authorized under the London treaty to lay down 135 ships before December, 31, 1936, in order to bring the navy up to treaty strength. In these 135 vessels are included 3 aircraft carriers, 9 cruisers, 89 destroyers, and 34 submarines, with a total tonnage of 316,530.

Order Bull Line Vessels

In the June issue of MARINE REVIEW it was reported that Gibbs & Cox Inc., naval architects, New York, had taken bids on the construction of one or two freight vessels for A. H. Bull & Co. Inc., New York.

It is now reported that a contract has been awarded by the Bull company to the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., for the construction of two freighters with a speed of 13 knots, each having a deadweight of about 7500 tons.

An alternate design was submitted to the owner by the Newport News Shipbuilding & Dry Dock Co. The contract is based on this design with certain features of the Gibbs & Cox proposal added. General particulars of the vessels call for a length overall of 408 feet; length between perpendiculars, 390 feet; beam, 54 feet; depth molded to upper deck, 30 feet, 6 inches. The gross tonnage will be about 5200.

The total shaft horsepower of the propelling machinery will be about 3200 in a single reduction geared turbine. Watertube boilers will supply steam at a pressure of 300 pounds per square inch.

Though designed with particular attention to efficiency as freighters, both in machinery and in cargo handling layout, each vessel will accommodate twelve passengers. Delivery will be made in from ten months to one year. It is interesting to note that these are the first freight ships for which contract has been awarded in American shipyards in 12 years, with the possible exception of the CITY OF NEW YORK.

Gibbs & Cox Inc., New York naval architects, will act in a consulting capacity for the owner in the construction of these two freighters.

To Open Bids on July 5

The Northland Transportation Co., Seattle, has requested bids from six Pacific coast and four Atlantic coast shipyards for the construction of a steel passenger and freight motorship for service in southeastern Alaska.

Plans prepared by M. H. Keil, naval architect, Seattle, call for a vessel of the following characteristics: length 231 feet; beam, 40 feet, 10 inches; depth, 23 feet. The propelling power is to be two diesel engines each developing 1000 horsepower. The speed of the vessel is to be 12½ knots. As this is written, the make of the engines had not been decided upon. Bunker capacity will provide for a cruising radius of 9000 miles.

Accommodations are to be provided for 100 first class passengers, in two-berth staterooms, and 22 passengers in second class. The cargo capacity will be 1500 tons, part of which will be refrigerated to handle fish.

Two Tankers Laid Down To Have 15-Knot Speed

It is reported that the Sun Oil Co. has begun the construction of two new tankers at the Sun Shipbuilding & Dry Dock Co., Chester, Pa. In dimensions the new vessels are to be identical with other tankers built in recent years for the same company. The hull particulars call for a length overall of 497 feet, 10 inches; beam molded, 65 feet, 9 inches; depth molded, 37 feet; draft, 27 feet, 2 inches; displacement loaded, 18,000 tons; gross tonnage, about 9000; and cargo capacity of about 113,000 barrels.

In one important respect the new tankers will differ from those previously constructed. The speed is to be stepped up from the customary 11 or 12 knots to 15 knots. The propelling power will be Sun-Doxford diesel engines applied to single screws and of increased power to give this speed. The present tankers are fitted with engines developing 2800 horsepower at 80 revolutions per minute. To obtain the increased speed the engines for the new ships will probably develop from 4000 to 4500 brake horsepower.

Improvement in the Sun Oil Company's tanker operations is cited as the immediate reason for the new construction. Not only has the company recently placed all of its idle tankers in operation, but it has been necessary to charter three tankers from other companies in order to handle increased business.

Order Two Gasoline Barges

The United Dry Docks Inc., New York, has received an order for two 11,000 barrel non-propelled gasoline barges to be built on the reverse channel system for James McWilliams Blue line. The dimensions are: length overall, 170 feet; beam, 38 feet, 1½ inches; depth, 14 feet, ¾ inches; loaded draft, 10 feet. Sides and bottom are to be constructed of 18-inch by 38.1 pound channels. The bilge, with a radius of not less than 12 inches, is to be of ⅝-inch plating. Electric welding will be used in construction throughout.

The hull will have eight transverse bulkheads, the fore peak and after peak bulkheads being located 22 feet from foreward and after ends respectively. The remainder of the bulkheads are to be spaced 18 feet apart. A longitudinal bulkhead extending from fore peak to after peak transverse bulkheads will divide the cargo space into eight compartments, four port and four starboard. The combined cargo capacity of the tank compartment is 11,000 barrels.

These barges will be built to American Bureau of Shipping class for limited coastwise service.

Electrically Welded Ship

The largest electrically welded steel ship constructed in this country, according to John H. Odenbach, president of the Dolomite Products Co., is to be launched early in July at Rochester, N. Y. The vessel is 213 feet in length overall 32 feet in beam, 13 feet, 4 inches in depth and has a draft fully loaded of 9 feet, 6 inches. The minimum draft permitting the ship to clear bridges is 6 feet, 6 inches, while the draft in light condition is 4 feet, 6 inches. The cargo capacity is 1200 tons and the ballast tank capacity is 600 tons.

Propelling machinery is of twin screw diesel electric type. Two Busch-Sulzer, four-cycle, air injection, six-cylinder diesel engines, each rated at 440 brake horsepower at 360 revolutions per minute, drive two Diehl 250 volt generators supplying current to two Diehl propelling motors, each of 350 horsepower.

The new vessel is to operate on the Great Lakes and the Barge canal. An illustrated and complete description of this vessel will be published in a later issue.

Pittsburgh Coal Co., Pittsburgh, has been authorized by its directors to build a new Ohio river towboat. As this is written no additional information is available, but it is assumed that the new boat will be of customary design and construction.

Tanker Construction Seen For Replacements

There are a number of evidences of interest in tanker construction. Tentative proposals have been made, it is understood, for two exceptionally large tankers for the Cities Service Transportation Co. and for one 16,000-ton tanker for the Sinclair Navigation Co.

Several of the other leading oil companies are also said to be planning tanker construction.

As the life of a tanker, depending on its service, cannot be much over 15 years, it is going to be necessary either to replace some of the older vessels with new construction or to elaborately rebuild by inserting a new hull body between the ends, which have not been affected by the corrosive action of oil carrying. In this way another 7½ years might be added to the life of a tanker and the expense would necessarily be considerably less than for new construction.

In any case it may be confidently expected that there will be considerable activity in connection with tanker construction and renovation in the near future.

Shorten Oil Tanker

To make the Texas Company's steamship MAINE available for service on the Great Lakes, the Robins plant of the Todd Shipyards Corp., New York, was awarded the job of shortening the tanker to enable her to pass through the St. Lawrence canals.

The bow was shortened 53 feet and the stern counter 4 feet. Shortening of the bow necessitated the elimination of the forward fuel oil tanks, cargo holds, No. 1 cargo tank, and No. 1 summer tank.

The new bow was faired into the old structure well aft in No. 3 cargo tank, or approximately 116 feet aft of the original stem. The original vessel is longitudinal in frame but the new bow structure is of transverse frame construction. Forecastle head and deck, hawse pipes and accommodations were renewed.

Bunker Prices

At New York

	Coal Alongside per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
June 18, 1933	4.30@4.60	.80	4.08
May 18,	4.30@4.60	.80	4.08
Apr. 18	4.30@4.60	.80	4.08
Mar. 18	4.30@4.60	.80	4.08
Feb. 18	4.30@4.60	.80	4.08
Jan. 17	4.50@5.00	.80	4.08
Dec. 16	4.50@4.75	.80	4.75
Nov. 18	4.50@4.75	.80	4.08
Oct. 18	4.50@5.00	.80	4.08
Sept. 18	4.50@5.00	.80	4.08
Aug. 18, 1932	4.50@5.00	.90	4.08

At Philadelphia

	Coal trim in bunk per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
June 18, 1933	4.30@4.60	.80	4.04
May 18	4.30@4.60	.80	4.04
Apr. 18	4.30@4.60	.80	4.04
Mar. 18	4.30@4.60	.80	4.04
Feb. 18	4.30@4.60	.80	4.04
Jan. 17	4.50@5.00	.80	4.04
Dec. 16	4.00@4.75	.80	4.04
Nov. 18	4.00@4.75	.80	4.04
Oct. 18	4.50@5.00	.80	4.04
Sept. 18	4.50@5.00	.80	4.04
Aug. 18, 1932	4.50@5.00	.90	4.04

Other Ports

June 18, 1933

Boston, coal, per ton	$7.75
Boston, oil, f. a. s. per barrel	$0.86
Hampton Roads, coal, per ton, f.o.b. piers	$4.25 to $4.50
Cardiff, coal, per ton	13s 9d
London, coal, per ton	—s —d
Antwerp, coal, per ton	17s 3d
Antwerp, Fuel oil, per ton	67s 6d
Antwerp, Diesel oil, per ton	82s 6d
British ports, Fuel oil	87s 6d
British ports, Diesel oil	102s 6d

Reconstruction Proposed for Eight Vessels

The Lykes Bros. Steamship Co. has under consideration an elaborate reconstruction program for eight vessels. This is the beginning of the program of new construction and reconditioning called for in the sale of 52 shipping board vessels to the Lykes Bros. Ripley Steamship Co., New Orleans.

Reference was made in the April issue of MARINE REVIEW to the purchase of these vessels and the announcement by the post office department on Feb. 28, of the award of contract to this company for carrying United States mail. This contract provides for the payment of $2,500,000 the first years with increased compensation as building requirements are met by the company. The contract runs for ten years and calls for a total expenditure for new ships and the reconditioning of others during this period of around $23,000,000.

Award Oil Contracts

Several contracts for supplying fuel oils to the navy were recently awarded. The contracts call for a total of 8,179,750 barrels of oil at a cost of $5,524,469.

The Gulf Refining Co. obtained the largest of the East coast contracts amounting to 506,000 barrels of grade A bunker fuel oil at $503,100 and 623,600 barrels of grade C bunker oil at $446,980.

The Standard Oil Co. of New Jersey received a contract to supply 236,000 barrels of grade C oil at a cost of $180,000. The Cities Service Refining Co. was awarded a contract at $205,000 to supply 180,000 barrels of grade A bunker oil for the East coast.

Word has been received that the Maryland Dry Dock Co., Baltimore, has been awarded a contract for converting the steamers PRESIDENT WARFIELD and STATE OF MARYLAND, from coal burners into oil burners. These two vessels operate in the service of the Baltimore Steam Packet Co. between Baltimore, Old Point Comfort and Norfolk, Va.

Install Cooling System

The Merchants and Miners liner DORCHESTER is trying out a new cooling system for the transportation of perishable food products. Should the system prove satisfactory it is understood that other vessels of the line are to be similarly equipped, so that they can more efficiently carry perishable products from Florida to North Atlantic ports.

The significance of this development lies in the effort being made to improve the service. The conditions existing have long been known, but up to the present time only the usual ventilating systems for carrying such products have been used. The ventilating system has not been completely satisfactory during the hot weather.

United States Engineers

Award of contract for furnishing 12 sets of radio telegraphic apparatus for the seagoing hopper dredges of the United States engineer department will be made to the Radiomarine Corp. of America at a low bid of $18,674.60. Bids from the successful company and five others were received at the office of the chief of engineers, Washington, on June 7.

Bids were opened June 12 at the United States engineer office, San Francisco, for furnishing one 26-inch self-adjusting drag head for the United States engineers dredge W. L. MARSHALL.

On June 2 the United States Engineer office at St. Louis opened bids for building and delivery afloat of two steel derrick boats. This is the item referred to in the June MARINE REVIEW, the date of opening having been advanced from May 17 to June 2.

First Class Sloops

On May 24 at the Hebburn Shipbuilding yard, of the R. & W. Hawthorn, Leslie & Co. Ltd., Hebburn-on-Tyne, England, keels were laid for the first class sloops AFONSO D' ALBUQUERQUE and BARTOLOMEU DIAS for the Portuguese government.

The dimensions of the vessels are length overall, 338 feet, 6 inches; beam extreme, 43 feet; depth to upper deck, 20 feet, 3 inches. The armament will consist of four 4.7-inch guns, two 3-inch high altitude guns and four 2 pounder pom-poms. Two fire control systems will be fitted. The vessel will also have mine laying arrangements for carrying 40 mines, two deck charge throwers and protective paravanes.

The machinery will consist of two sets of single reduction turbines with watertube boilers, designed to give the vessel a speed of 21 knots. The machinery is to be constructed at the St. Peters Engine works of the shipyard.

Accommodations for officers and crew are specially designed for tropical conditions.

The VULCANIA of the Italian line sailed from New York June 21 for Mediterranean and Adriatic ports with 1203 passengers including 241 in first class. She made a stop at Boston on June 22.

Launch Lighthouse Tender at Wilmington

The new lighthouse tender LILAC, under construction by The Pusey & Jones Corp., Wilmington, Del., for lighthouse and buoy work in the fourth lighthouse district, was launched on May 26.

The LILAC is a twin screw, steam propelled vessel, 171 feet in length. Including equipment, the cost completed will be approximately $225,000. The propelling machinery consists of two triple expansion steam engines each of 500 indicated horsepower at 160 revolutions per minute. It is expected that she will be completed toward the end of July. Her service will include the maintenance of buoys and lighthouses in Delaware bay and river.

Launch All-Welded Barge

The Staten Island, N. Y., plant of the United Dry Docks Inc. on June 12 launched an all-welded oil and gasoline barge constructed on the patented truss-weld system for F. D. Koehler Co., Staten Island, N. Y.

The new barge christened the F. D. KOEHLER Co. No. 6 was designed by W. S. MacDonald, naval architect, 90 West street, New York. It is 100 feet in length, 33 feet in beam, 9 feet deep, and is non-propelled. Fully loaded it will carry 168,000 gallons in 16 tanks, eight port and eight starboard, divided by an oil tight centerline bulkhead.

The cargo pumping system consists of two 5-inch diameter and two 3-inch diameter rotary pumps, mounted on a common frame and driven by a 50 horsepower gasoline engine. A separate 5-inch pump is provided to handle the heavy oil from No. 6 tank only.

Exhaust Steam Turbines

The Ellerman line, one of the largest British steamship companies, recently awarded contract to Workman, Clark, Belfast, for reconditioning four vessels. Word has now been received that two additional vessels are to be similarly reconditioned at the same yard.

Included in this work will be the fitting of a turbo-electric exhaust steam systems in combination with the existing reciprocating engines. The propelling power of the vessels will thus be materially increased resulting in a step-up in speed or a lower consumption for the same speed.

The L' ATLANTIQUE, wrecked by fire is to be towed to St. Nazaire. A dock at this port to receive the vessel was to be ready around June 20.

Marine Smoke Abatement Successfully Effected

THE two and one-half year history of the Marine Smoke Abatement association of Hudson county, New Jersey, should be of more than casual interest to *all* operators of floating equipment . . . for two good reasons. It saves money and it is winning public favor.

In the early part of 1931 the marine departments of the ten trunk lines terminating in the metropolitan area were confronted with smoke ordinances which they were not organized to comply with. They were not "armed" to fight smoke. On the other hand, groups of metropolitan homeowners were organizing in an active way to see that the laws *were* enforced. Consequently, month after month, railroad marine departments found fines becoming a regular expense, and still no concerted attack had been made on the problem itself.

About this time Stevens Institute of Technology and Hudson county became "partners" in a drive to eliminate smoke. The idea was to attack it with engineering knowledge. A research department, headed by Col. Elliott H. Whitlock, Cleveland, was set up at Stevens. A department of smoke regulation, staffed with engineer-inspectors, was installed as part of the governing body of Hudson county, to teach fuel users how to abate smoke.

Marine Department Interested

At this point the representatives of railroads saw their opportunity, and in April, 1931, came the birth of the Marine Smoke Abatement association of Hudson county. Under their own initiative the railroads joined hands with the Stevens smoke research department and the county engineers to get rid of smoke by better combustion. The various representatives of the railroad marine departments set a regular monthly meeting at Stevens Institute to consult with the Stevens research department and the county department.

Since that time marine operators have steadily reduced smoke; by getting better combustion in the fire-box. By means of experiments, followed by actual installations of air jets over the fires, changing grate areas, "spacing" or "timing" the firing of green fuel, alert, organized supervision . . . the foremen have educated their forces well toward the ultimate goal of complete combustion. They have reduced smoke by 70 per cent, based on the reduced number of violations noted by the engineer-inspectors of Hudson county. (A regular monthly average of 250 observations are taken.)

Fuel costs have been lowered. Fines have been practically eliminated. Public good will has taken the place of public animosity toward the railroads. Greater operating efficiency has gone hand in hand with better combustion and reduction of smoke.

The success of the Marine Smoke Abatement association, originally consisting entirely of railroad interests, has brought new marine operators into the fold. Now large steamship companies and towboat companies are sending representatives, usually the port engineer or the marine superintendent, to the monthly discussions at Stevens Institute.

The Marine Smoke Abatement association, because of its successful venture, invites the consultation of marine interests of other ports with a view to a satisfactory solution of this problem through proper organization.

Increased Business Seen

The New England Steamship Co. which operates the Fall River line, the Providence line, the New London line, and the New Bedford line, late in May completed arrangements to handle a large number of passengers on its various services during the summer season.

Passenger fares have been substantially reduced for the 1933 season which promises to be one of the best in the company's history. Automobile rates have been reduced and in some instances will represent savings of as much as 25 per cent. The various vessels of the New England Steamship Co. are equipped with big sideports for the handling of uncrated automobiles. The company has noticed a marked increase in the number of cars taken along by passengers for tours in New England.

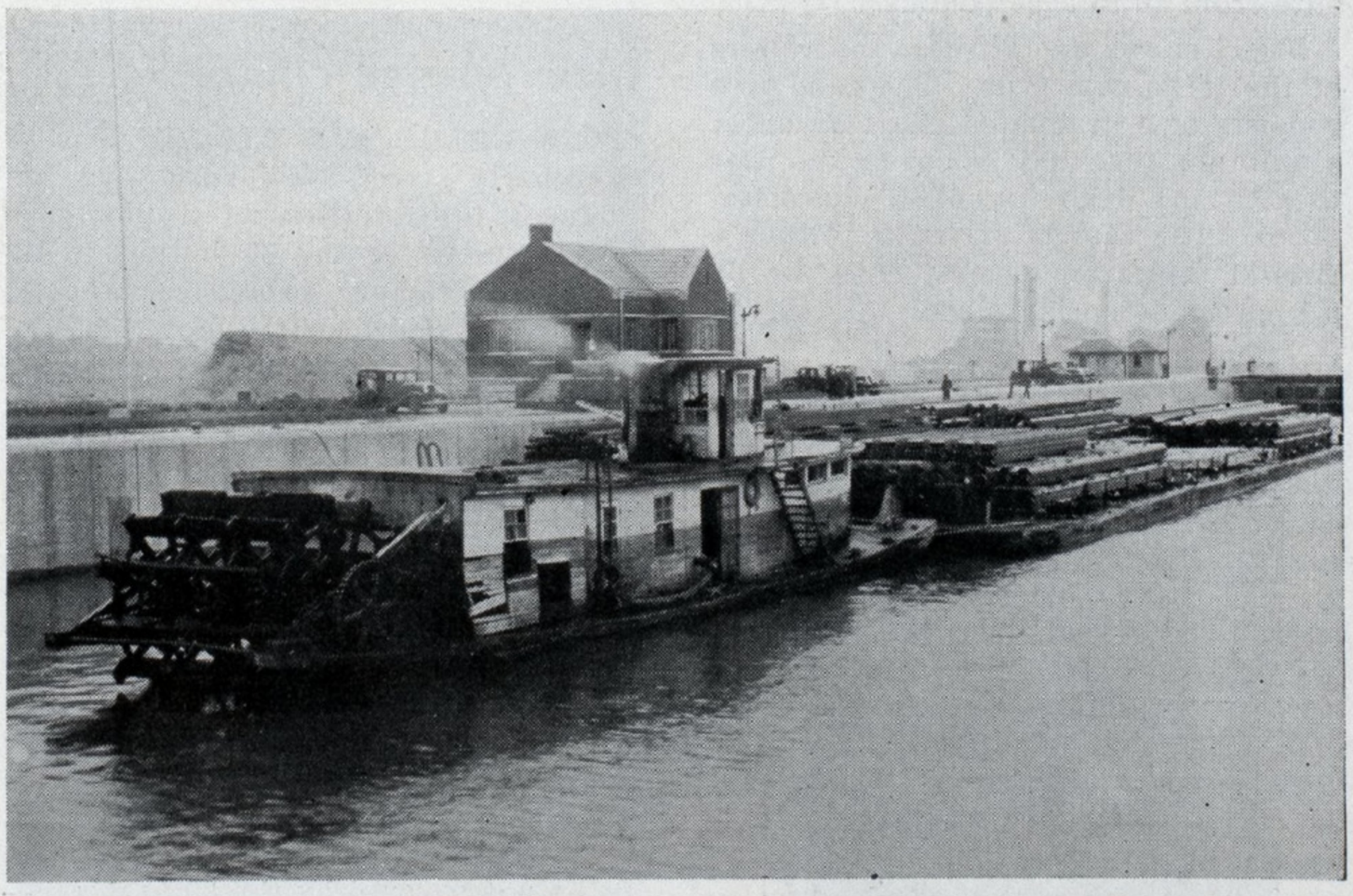
Long Record of Service for North German Lloyd

JUST under 10,000,000 people have voyaged across the North Atlantic between Europe and America in the 75 years since the first North German Lloyd steamer, the BREMEN, sailed out of the Weser river on her maiden voyage to New York, June 19, 1858.

On this trip the BREMEN, a three-masted steamer of 2687 tons, carried 22 first class and 93 steerage passengers. She arrived in New York July 4, 1858. These 115 voyagers were the vanguard of a total of 9,998,100 passengers who have crossed on Lloyd liners in the three-quarters of a century following. During this period Lloyd liners have made 8253 round trips across the North Atlantic, aggregating a total of 66,998,140 miles covered.

The first Bremen was 302 feet long and in addition to her sails was equipped with an engine of 700 horsepower. She could carry 400 passengers and her crew numbered 70.

The express liner of today, the fourth vessel of the Lloyd line to bear this name and the present holder of the "blue ribbon," has a gross tonnage of 51,656. She is 938 feet in length and has a beam of 98 feet. Her turbines develop 110,000 horsepower. She can accommodate 2200 passengers and the crew numbers 1000. As reported more fully in another item in this issue the BREMEN recently broke her own previous eastbound record establishing a new mark of 4 days, 17 hours, and 42 minutes, against the 15 days of her ancient predecessor.



STEEL THAT IS MAKING HISTORY: First cargo of steel to be shipped entirely by water from Chicago to New Orleans by the Lakes-to-Gulf deep waterway consists of 1200 tons of steel sheet piling produced by the Inland Steel Co., Chicago. The piling is for use in the La Fruita dam, La Fruita, Tex., for Corpus Christi, Tex. The contractor is J. L. Simmons & Co., Chicago and Decatur, Ill. The shipment was handled by the Illinois River Navigation Co.

Equipment Used Afloat and Ashore

Combination Burner-Pressure, Temperature Controller—Fire Brick—Regulators—Condenser Tubes — Large Urn — First Turbine — Wide Range Oil Burner

A COMBINATION pulverized-coal and oil burner which successfully meets the requirements of such an installation in water-cooled furnace walls has been developed by the Babcock & Wilcox Co., 85 Liberty street, New York City.

The pulverized-coal burner is the company's standard multiple intertube burner. The oil burner is of the twin-nozzle type and is inserted between two tubes in front of the pulverized coal burner, extending back and through the burner casing, supported by a guide trough between the casing and the burner tip. The oil-burner tips are set so that the oil is distributed across the air stream to obtain a satisfactory mixture of fuel and air.

Temperature and Pressure

THE BRISTOL CO., Waterbury, Conn., announce the introduction of new time temperature and time pressure controllers. The success of the Bristol's free vane air operated pressure and temperature controllers has led to the manufacture of these instruments.

In many processes, it is desired to regulate a temperature (or pressure) at some fixed rate, and then either hold it or decrease it at some other rate. The new controllers will do this, on any range of temperature from —40 to 1000 degrees Fahr., or pressure from 10 to 2000 pounds.

Fig. 1 shows one of these controllers of the large cam type. The cam here consists of a graduated chart on sheet aluminum, that may be cut by the user to give any desired control characteristics. The cam is driven by either a Bristol telechron electric clock or by a high grade spring clock. Air supply and control gages are mounted self-contained, and the whole is enclosed in a moisture-proof aluminum case.

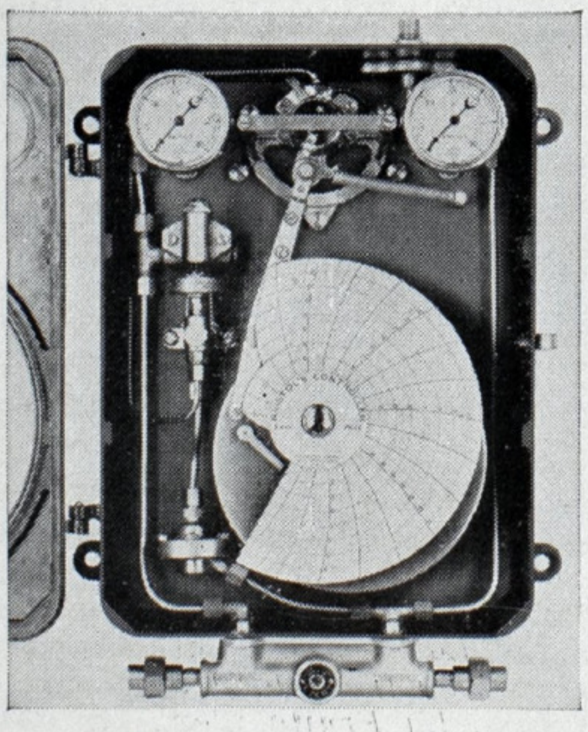


Fig. 1—Free Vane Pressure Time Controller

Fig. 2 shows another model similar to the first, except that it is equipped with an indicating pointer which shows the instantaneous pressure or temperature at all times. The cam is

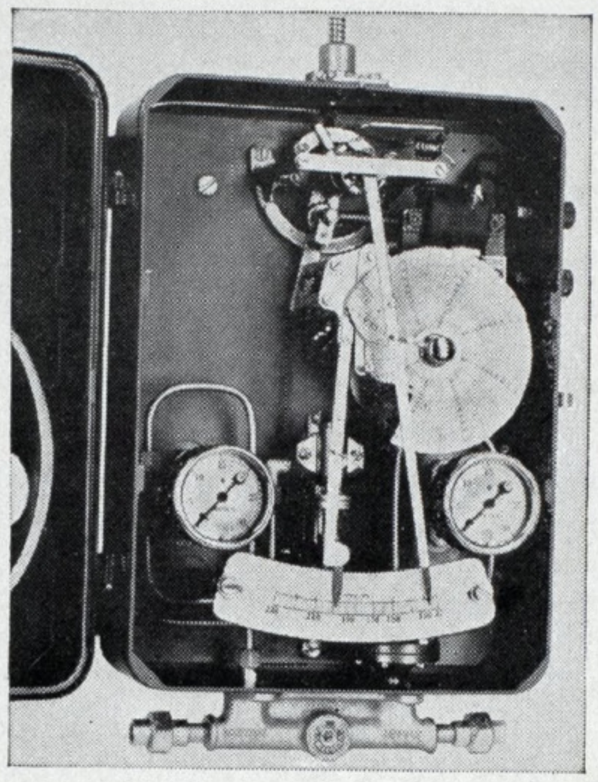


Fig. 2—Indicating Temperature Time Free Vane Controller

of aluminum and is graduated so that the user can cut to any desired cycle. The use of the free vane principle allows the instrument to control without restricting the indicating pointer at any time. The cam is automatically driven and is readily changed.

New Marine Firebrick

THE BABCOCK & WILCOX CO., 85 Liberty street, New York City, announces the addition of a new firebrick, known as the 80 junior, to its line of refractory products. The 80 junior was developed to meet the conditions existing between the moderate service economically met by fire-clay refractories and the severe conditions met only by the well-known B. & W. 80 firebrick.

It is for this field, in which fireclay brick are unsuitable, or are only moderately satisfactory, from the standpoint of service life, and in which the 80 firebrick is uneconomical because of its high price, that the 80 junior was developed. The new firebrick is in no sense a substitute for the B. & W. 80 firebrick—it being for service in fields not covered by the 80 firebrick—fields in which the premium-priced, super-refractories and other special bricks of the alumina-silica class are now used, but which prove costly when installed to meet conditions that are near their upper service limits.

Some idea of the relative resistance of 80 junior firebrick to high temperatures may be gained from the fact that it has a melting point of 3175 degrees Fahr., which is approximately 100 degrees higher than that of representative firebrick, and its pyrometric cone equivalent is 33. The melting point determinations were made in accordance with standard test methods with the exception that the readings were obtained with carefully calibrated optical pyrometers.

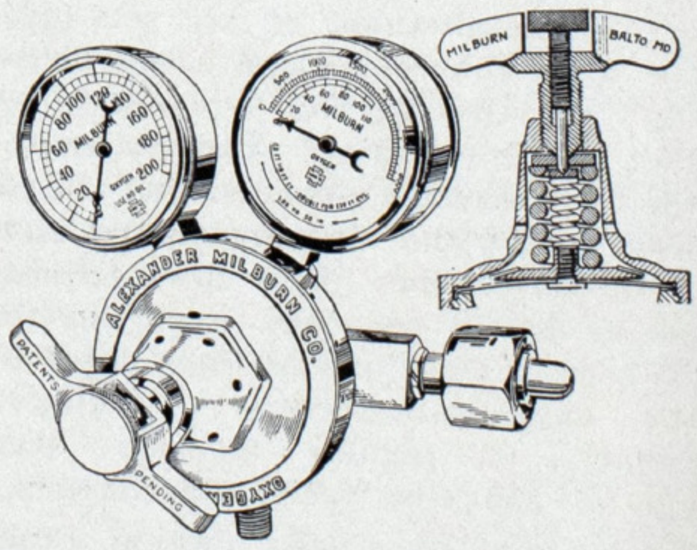
Adjustment Regulator

A REGULATOR for use with oxygen, acetylene and other gases, which has a dual adjustment comprising a fine micrometer adjusting key housed within and operating separately from the main regulator key has been developed by the Alexander Milburn Co., Baltimore. The regulator has two compression springs, one within the other, operating a removable, noncorrosive metal diaphragm.

The main key operates the standard or heavy spring, and the micrometer adjustment key a fine bronze spring which enables the operator to secure a range of from zero to approximately 5 pounds, in addition to the adjustment obtained with the standard adjustment key.

This means of adjustment is so fine that fractions of an ounce can be obtained with the micrometer key, either when the pressure is at zero or at whatever pressure the standard key has been set for on the regulator; for instance, if the key is screwed down until there is a pressure of 10 pounds, the micrometer key adjusts fractions of an ounce up to 5 pounds more.

The regulator is extremely sensitive for the finer pressures necessary for low pressure torches and small torches doing fine work and requiring close adjustment.



Regulator for Accurate Adjustment of Oxygen or Acetylene pressure

Condenser Tube Corrosion Is Largely Overcome

THE recent awarding by the United States navy of the contract for 200,000 pounds of nickel-copper condenser tubes for six new destroyers which the navy is to build, and 130,000 pounds for the new cruiser 39, calls attention to the progress which these tubes have made in the past decade. Conditions of service of naval vessels are more exacting than those to be found in other vessels.

Ten years is short time in the history of steam engineering, yet the last decade has witnessed considerable advances in steam generating plants. Research and extensive practical tests have definitely proved the superiority of copper-nickel alloys over the alternative materials available, resulting in their widespread adoption by many of the navies and mercantile marines of the world.

Although marine condensers now account for by far the largest number of copper-nickel tubes, the first 200 commercially made tubes of 80/20 copper-nickel composition were supplied in 1922 to a land power station—the North Tees Power Station of the Newcastle-upon-Tyne Electric Supply Co. Ltd., England.

Copper-Nickel Condenser Tube

Copper-nickel condenser tubes were used about the same time, in small quantities, in marine condensing plants, but they had not been employed for a complete installation until experiments were carried out in the Canadian Pacific steamships MELITA and MINNEDOSA, these vessels being the first to be equipped with copper-nickel tubes throughout the condensers. The brass tubes previously fitted in the condensers of these two vessels had an average life of one year, but the copper-nickel tubes installed in 1926 are still in the ships and are giving satisfactory service.

As a result of the success of these initial installations, the Canadian Pacific Steamships Ltd. has extended the use of copper-nickel tubes until practically the whole fleet is now fitted with them. The latest Canadian Pacific ship to be so equipped is the EMPRESS OF BRITAIN, the largest liner completed in Britain since the war.

Following the lead of the Canadian Pacific, many other operating companies on both sides of the Atlantic have taken advantage of the long life and reliability offered by copper-nickel condenser tubes, and a large and growing number of vessels of many nations are now equipped with them. Among recently commissioned liners, the MANHATTAN and WASHINGTON of the United States lines are notable. These ships each carry 100,000 pounds of copper-nickel tubes.

The new French steamships CHAMPLAIN and L'ATLANTIQUE and the new superliners REX and CONTE DI SAVOIA all are equipped throughout with copper-nickel tubes.

The CONTE DI SAVOIA, which is one of the largest ships to be launched in the post-war period, has just established a new record for the Genoa to New York run. She has a speed of more than 27 knots.

A total weight of nearly 200,000 pounds of copper-nickel tubes was required for the condensers of the REX, while practically the same quantity has been fitted in the CONTE DI SAVOIA. In both of these ships, as well as in the EMPRESS OF BRITAIN, the condenser tube ferrules are also of copper-nickel alloy.

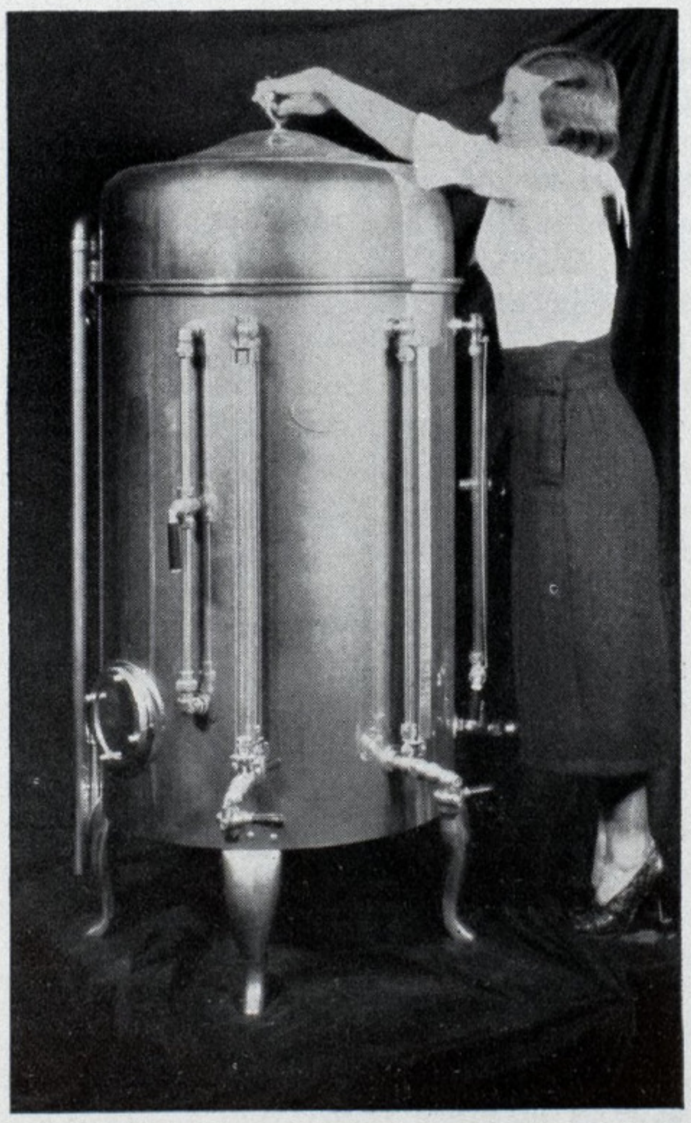
Largest Urn Installed

THE largest urn ever made at the Mansfield, O., plant of the Westinghouse Electric & Mfg. Co. was recently bought by the United States coast guard training station, New London, Conn.

Large enough to hide an ordinary girl, this urn will make 20 gallons of coffee at one time. In addition this urn has an extra capacity of more than 40 gallons of hot water, which can be readily used to make tea, hot chocolate, or bouillon.

An exclusive feature of this urn is that the hot coffee is repoured automatically and visibly through a glass tube, thus utilizing all of the strength from the coffee grounds, with the result that the beverage can be brewed more economically.

This urn is from two to three times as large as the size adapted for average hotel, ship and restaurant service.



Coffee Urn of 20 Gallons Capacity

The First Steam Turbine, Exhibited at Fair

AT THE Century of Progress exposition in Chicago there is an exhibit showing the development of prime movers, consisting largely of models of early and recent engines and turbines. One of the machines is a De Laval geared steam turbine driving a direct current generator which was actually used to supply current at the Columbian World's fair at Chicago in 1893, and is believed to have been the first steam turbine generator unit placed in commercial service in the United States.

The turbine, which is of the single stage, impulse type, ran at 24,000 revolutions per minute and drove the 110-volt direct current generator at 2400 revolutions per minute by means of a De Laval double helical speed reducing gear, developing 6.6 kilowatts.

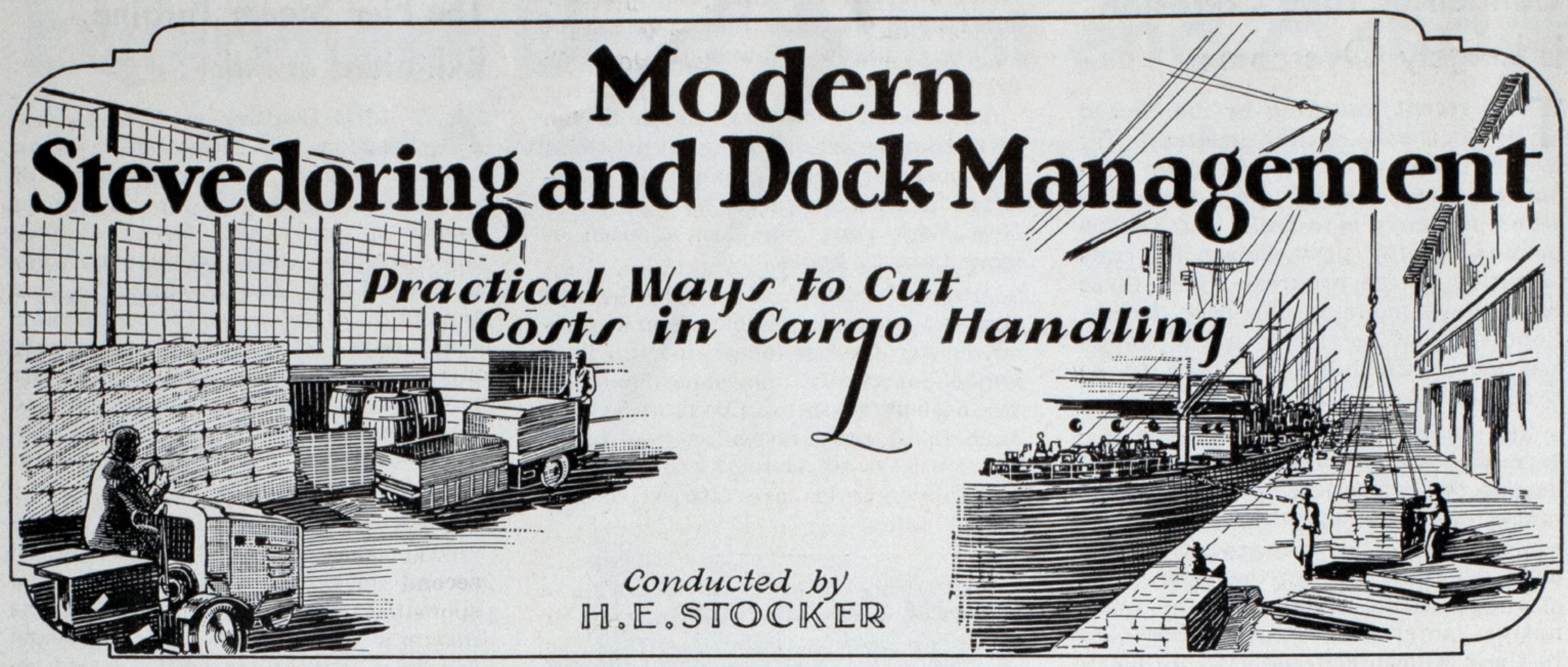
Steam was expanded from 125 pounds gage pressure to atmospheric pressure through diverging or flaring nozzles, which had been invented by De Laval in 1888, and which are now employed by practically all turbine builders. That the theory of such nozzles was far from obvious, however, is shown by the fact that when De Laval applied for a United States patent in 1889 he was met with the objection from the patent office that the idea was not workable, and it was only after the machine at Chicago had been exhibited in actual operation that the patent was allowed.

Wide-range Oil Burner

THE BABCOCK & WILCOX CO. announces the development of an oil burner that can be easily and quickly adjusted to operate efficiently over a wide range of capacities and that has operated very satisfactorily in service. The barrel assembly of the burner, which is known as the wide-range mechanical atomizing oil burner, is used in the company's standard mechanical-atomizing oil burner register.

The fuel oil is delivered to the burner tip through two passages, an outer annular passage carrying the primary oil stream and the center oil barrel carrying the secondary oil. Both primary and secondary oil meet at one nozzle and a sprayer plate at the burner tip.

Changes in capacity with a given nozzle and sprayer plate are secured by operating at low capacities with primary oil alone, and at higher capacities with primary and secondary oil together. A capacity variation of four to one with any one combination of a sprayer plate and its nozzle may be secured. It has been found by tests that atomization is excellent throughout the entire range, and the oil flow from the burner nozzle is in the form a practically perfect cone.



Cargo Handling Facts and Principles Must be Properly Applied

By H. E. Stocker

ANYONE who collects the facts on cargo handling and studies these facts without prejudice is forced to the conclusion that a broad conception of the problem of economical cargo handling by steamship companies will show that modern methods and equipment put into full use by organizations planned and managed in light of the knowledge which is readily available on management, will accomplish much in rehabilitating the finances of our shipping companies.

Obsolete equipment and methods are a self-imposed burden which may be lifted by finding the one best method and taking definite steps to put the best one method into effect. Very often the only result is a fine report. Twenty years' experience has taught me never to expect too much, but there is room for improvement, and the rate of improvement will be accelerated as the facts become more generally known. This concerns the effective use of facts in developing the best methods of handling cargo.

The chief obstacle to replacement of obsolete equipment is the viewpoint of responsible executives rather than the difficulties of financing. This is especially true in cargo handling equipment which pays for itself in such a short time, a few months in most cases.

The obstruction to cargo handling progress is not due to lack of desire on the part of these executives to cut costs and improve service, but rather that their experience has not been such that they are familiar with cargo handling facts and principles upon which sound judgments must necessarily be based. My observations during the past twenty years have shown many opportunities lost because of the excessive centralization of authority. This has resulted in decisions based upon misconceptions because the decisions have been based upon inadequate and incorrect information.

A vast amount of valuable information in the minds of the members of every organization, I have been associated with, has not been utilized to the fullest extent possible. Lack of provision of adequate new idea facilities is a characteristic of almost every transportation organization with which I am familiar. The value of constant research for new and better methods has been demonstrated, but not many organizations have made a determined effort to obtain all ideas that may cut cost and improve service, and then put these ideas into practice.

This has been brought out very forcibly in visiting railroads and marine terminals, ships, industrial plants and warehouses. There are hundreds of details alone which can be adopted from most railway material handling operations. It is stimulating to the imagination to dwell upon the money which can be saved, if the one best way of doing every job on a terminal were decided upon. The manner of handling personnel on terminals is worthy of close study.

The most effective results in handling personnel have been accomplished by those who have not used slave-driving methods. Some foremen, for example, are impressed by the manner in which their men hurry when they shout at them. This shouting is impressive. Who would not hurry when the boss shouts, and the failure to hurry results in "docking" or the loss of the job? But what happens when the foreman is out of sight? The men soldier on the job. Those who advocate the slave method should study the investigations which have been made in industrial fatigue. Much of these investigations have been illuminating in the extreme.

On the other hand if the men are given proper incentive they will work with more consistency, and the net result will be that more work is accomplished per man than with the slave-driving method.

This plan must necessarily be based upon intelligent selection of the personnel. Some men will not respond to proper incentive. One of the chief contributions of modern management has been its successful effort to measure the work performed accurately so that it is possible for the first time to gage the effect on results of changes in wages, working conditions and other factors affecting the work produced.

The developments of the past 25 or 30 years have disclosed that the best results are obtained not by instilling fear, but by establishing properly planned wage incentive or bonus plans and creating the best possible work-

ing conditions for the personnel.

Incentives should not be used merely to force the workman to do his utmost. Such efforts will not result in the maximum results. Incentives must be planned to awaken the interest of the man who produces to the extent that he should have pride in his work, and to retain his interest by making him feel constantly that his activity is the self-expression of his own individuality.

An incentive makes a man think continually of *giving* the most in order to *receive* the most. The aim and the main purpose of any incentive plan is to reduce cost and increase wages similarly.

An incentive is a stimulus which fulfills desires of the individual and induces him to activity, the performance of which satisfies his temperament. It does not admit punishment for failure as a means of stimulus to activity.

These conclusions are based upon years of working for others and years of experience in directing the activities of others, supplemented by almost constant discussions with practically minded men.

Coupled with incentives there should be a carefully developed method of training. It is a part of the work of the management to train men in the best way to perform their work. Management has greater knowledge, experience and time for analysis and should convey to the personnel as needed, the results of the combined results of this knowledge, experience and analysis.

There is ample evidence that more work is produced in a given time by training men in the best way to do the work rather than attempting to gain results by driving. Recently a comparison was made of two stevedoring operations. In one there was a great deal of shouting and hurrying, cargo was stowed poorly, and costs were high. In the other operation there was little shouting, but much intelligent training. The cargo was stowed better than I have ever seen cargo stowed, and costs were low. This more efficient management was characterized by broad experience, analytical ability and more important than anything, a real understanding of the human factor. This understanding led to a thorough training of the men, spread over a period of several months to get the original organization up to a reasonable standard. The training was extended and continued thereafter as conditions made necessary.

Management's job today is essentially one of planning and training. Training is primarily teaching. The organization difficulties which hamper the development of better ways of doing the work of a terminal can be overcome largely if the training of the men is handled in light of the developments in industrial training in the past 25 years.

Most men go through certain stages of learning. The first stage is usually one of resistance. A man does not want to admit that anyone is better than he is, nor does he want to bother with new ways.

One way to advance beyond that stage is to teach the men how to do the work better. Sometimes the man will deliberately try to prove that he is stronger than the man teaching him and can obstruct the instructor's ideas. The instructor or boss must then be capable of showing that he knows what he is about. Once he has demonstrated that he knows his business and is a real man among men, the former obstructionist becomes a sincere backer.

The ability to handle the training of an organization successfully is an important consideration in selecting a man for supervisory positions and in selecting men for other positions.

The method of selecting men for various classes of work is important. People differ greatly in their capacity for routine. There are many people who like a steady job and can do the same type of work year in and year out and not tire of it.

The opposite type of temperament gets restless, stale and sick of routine. This type needs a change of work, change of scene or change of interest. Generally the more highly organized temperaments recoil from routine.

To obtain the best results these facts of human nature must be taken into consideration in selecting men for their various jobs in handling operations.

Offer Vacation Cruises

The Ward line of the New York & Cuba Mail Steamship Co., is finding its seven-day, all-expense vacation cruises to Havana from New York, at $65 and up, very popular. These cruises are made aboard the great turbine electric passenger liner, MORRO CASTLE, one of America's finest cruise ships, and one of the two finest and fastest passenger ships in exclusive all year New York-Havana service.

The Ward line is also featuring 13-day and 20-day all expense tours from New York to Mexico City. The turbine electric steamship, ORIENTE, sistership of the MORRO CASTLE, leaves New York on these cruises on alternate Wednesdays. The 13-day tours are at the minimum of $175 and include transportation on the ORIENTE from New York to Vera Cruz and return; also, rail transportation from Vera Cruz to Mexico City, and return, with Pullman berth and meals. Two days and one night are spent in a first class hotel in Mexico City, with room, bath and meals. The 20-day tour to Mexico City on board the ORIENTE is at a minimum of $205 and includes a stay of eight days in the Mexican capital.

Loss of Two Vessels By Grounding and Fire

In the bulletin of the bureau of navigation and steamboat inspection of the department of commerce for June 1, interesting information is given on the loss of the fruit carrying motorship TABASCO off the coast of Yucatan and the ferry steamer PERALTA at San Francisco.

The TABASCO while on a voyage from Alvaro, Obregon, to Boston, grounded on Alacran reef off the coast of Yucatan. The cargo was jettisoned and a wrecking tug came to give assistance. Despite all efforts to float the vessel she became a total loss, and on May 1 was abandoned. The master and second mate were found to be responsible for the accident and the master's license was suspended for 60 days. The license of the second mate was suspended for 30 days. The value of the vessel was given as $230,000, insurance being carried in the amount of $210,000.

The turbine electric steamer PERALTA, completed in March, 1927, by the Moore Dry Dock Co. for the Key System Transit Co., Oakland, Calif., was destroyed by fire at the Emeryville pier, San Francisco bay. The PERALTA was taken off the run at 9:15 a. m. May 6, fires extinguished and boilers allowed to cool down, after which the entire crew went off duty. At about 10 p. m., the pier took fire from some unknown cause and the location was such that it cut off all access of the PERALTA.

The watchmen on the pier attempted to board the vessel to let go the lines, but were prevented by the flames, and the vessel caught fire from the blazing pier. After the mooring lines had burned, the vessel was towed away but the damage was so great that she is considered a total loss. There being no crew on board and no negligence on the part of the licensed officers, no action was deemed necessary. The vessel was valued at $925,411.

An illustrated description of this vessel at the time of her completion appears in MARINE REVIEW for April, 1927.

Electric Drive Featured

At the Century of Progress exposition, Chicago, the General Electric Co., among its other exhibits, will show the part played by electricity in modern transportation. Models are used to tell the story of electric ship propulsion.

One of these models is a reproduction of the turbine electric driven liner CALIFORNIA of the Panama Pacific line. Another is a framework model showing the generating equipment, propulsion motor and auxiliaries necessary to operation.

Loading Sugar at Kaanapauli with Vessel Offshore

KAANAPAULI, Maui, Hawaiian Islands, is an open port on the west coast, adversely affected by west, southwest and south winds. There is only a small headland extending from the beach with 20 feet of water against the bluff, neither side affording any shelter in bad weather. Ships lie 1000 feet off shore in about 80 feet of water and on poor holding ground. There are four buoys placed for mooring ships at right angles to the beach. A slight swell runs at all times, though it does not affect loading in good weather.

The floating equipment, for which there is no shelter and which must be buoyed out or hauled up on the beach, consists of seven barges, holding from 90 to 140 tons each and two gasoline engined tug boats.

The land equipment consists of a warehouse, holding something like 10,000 tons of sugar, one fuel oil tank (for mill use), one molasses tank for shipments, all some four miles from the sugar mill. Narrow gauge flat cars (small cars for transferring from warehouse to landing) box cars and both steam and gasoline locomotives and some 8 or 10 mules are used between warehouse and landing.

A Fast Belt Conveyor

A very fast belt conveyor and trough is laid alongside the end of the track, with a swinging extension which is held out over the water some 20 feet by means of a crane. There are two lines of track, one slanting up and to the side over the trough, for ease in dumping the sugar. The other tracks, for general freight, are located under the boom. Both have sufficient switches and trackage leading to the warehouse in the rear. Several winch drums are installed for hauling cars up, handling the heavy crane, extension belt conveyor and for hauling and holding barges in place while loading. The barges lie under the bluff which is about 15 feet high at this point, and away from it some 10 feet by means of lines to off shore buoys.

The handling arrangement is carried out as follows: An empty lighter is towed up to the cliff. Buoy lines and winch lines are attached and hauled in taut by winch lines. The center of the lighter is about under the end of the swinging conveyor belt and it is necessary for men to stand by these drum lines at all times, as the barges work back and forth some 10 feet with the swell.

The small warehouse cars are brought by mules to near the end of the landing, at which point a winch cable is attached and they are hauled up the slanting track and alongside the trough of the belt conveyor. As the cars also slant sideways it is easy for two men to dump the bags into the trough from the cars. A man is always standing by the belt engine, which moves at a high rate of speed. After discharging, the cars are allowed to run by gravity down the slanting track where they are switched to a return track. Then three full cars are fastened to the cable and the process is repeated.

Bags Are Well Distributed

The conveyor arm is about 10 feet above the deck of the barges, consequently the sugar is piled rather high. By raising and lowering and swinging the chute the load is distributed well over the deck. There are four men on the barge while loading to direct bags and handle lines while shifting.

There are 100 men employed in the warehouse loading cars and 8 men in shifting to the landing with mules and gas locomotive, and bringing empty cars back. Eight men are used to discharge the small cars at the landing and an additional 12 men are used on winches, conveyor and barges, making a total on the landing and at the warehouse, on the shore end, of 128 men.

The stevedoring in connection with loading the ship is carried out as follows: The loaded barges are towed alongside. Eight men are detailed to load slings. One man in each corner with two men. Forty bags are stacked to a net. The net is 6 feet x 6 feet with four loose corner bridles, rings and slip hooks. A table is made up in the hold and 12 men carry sugar to stowage, after nets are dumped on the table. Good stowage is obtained.

The longshoremen for the most part come from the plantation fields. The hatch foreman and winch drivers and hatch tenders are mostly men from the landing. All labor is paid 36 cents per hour, but a bonus system has been installed whereby the hatch boss, hatch tender and the two winch drivers receive one hour's extra pay for every 2½ tons over 25 tons loaded an hour.

The Linde Air Products Co., 30 East Forty-second street, New York, has recently issued instructions on ox-welding for general maintenance. A description is given of the oxy-acetylene process of welding and cutting, in the reclamation of broken and worn machine parts, alteration, fabrication and installation of equipment.

Among the various items covered are piping, tanks and containers, machine elements, engine and pump parts, frames and conveying equipment.

Repair of worn parts by bronze-surfacing and hard-facing is given special consideration. Among the many illustrations is a chart giving 13 simple tests for identifying the more common metals.

Gain in Passenger Travel

Tourist interest in South America is undergoing a marked revival as far as residents of the United States are concerned. This is reflected in the big increase in bookings and inquiries at the offices of the Furness-Prince line. This line recently inaugurated a series of low priced all-expense cruises to Brazil, Uruguay, and the Argentine, in conjunction with its regular service from New York with the modern motor liners NORTHERN PRINCE, EASTERN PRINCE, SOUTHERN PRINCE and WESTERN PRINCE.

In the opinion of Capt. Charles M. Armstrong, passenger traffic manager of the Furness-Prince line, several factors contribute to the improved tone of the South American travel business. A number of veteran travelers to other parts of the world are turning to the countries south of the United States in search of something different. The low cruise fares representing reductions of 25 per cent and the co-operation of the South American countries with steamship companies in attracting American tourists by lifting numerous restrictions and cutting red tape, are also partly responsible for the improved prospects in these services.

Edward M. Hagarty Dies

Edward M. Hagarty, traffic manager of the Cunard and Anchor lines died at his home, at Medford, Mass., May 16. He was born in South Boston 50 years ago and was educated in the public schools of that district and in the Mechanics Arts High school. He joined the Dominion line, 28 years ago, and he has been traffic manager of the Cunard line since 1916.

He was prominent in steamship circles as a member of the North Atlantic and United Kingdom freight conference, a director in the Traffic club of New England and as secretary of the steamship committee for a number of years. Michael L. Kennedy who was assistant traffic managers, now becomes traffic manager.

Useful Hints on Cargo Handling

A CASTER type trailer is in use at the Union Inland Freight station, New York City. This trailer in size, capacity and equipment agrees with the commonly used caster type trailer for warehouse use.

It consists of two longitudinal formed channel members extending the full length of the trailer. These two channels are connected at each end by a forged steel strap which acts as a separator and a tie bar. Each channel supports directly a caster assembly and a load wheel assembly.

The wood floor boards rest directly on the top or back of these channels, setting crosswise of the trailer. The ends of the boards are protected by a continuous round-about angle with the horizontal flange of this angle at the top. This top flange may or may not be rabbeted into the wood deck. This round-about angle frame fits snugly over the ends of the channels and their connecting tie bars.

The holding bolts passing through the top flange of this round-about channel and through the wood planking are pulled tight by the use of steel clamps hooked over the outer flanges of the longitudinal channels. The coupler members at each end are secured by bolts passing through the coupler casting, the round-about angle and the tie strap connecting the two channels.

This assembly produces a trailer of no greater weight than those of approved type in common use but by virtue of the design and assembly certain features of distinct value are obtained.

Rolling Bulkheads Used

A DIESEL electric grain carrier has been built recently abroad. This ship has 4 large hatches on each deck, served by 4 electric winches and 4 derricks to permit double gang operation for every hatch.

The 4 holds are of equal cubic capacity. A permanent steel bulkhead is fitted throughout the holds. In way of the hatch a portable steel rolling bulkhead, divided into two parts, of the Macanking type, is fitted in place of the usual shifting boards. This bulkhead is held in a top and bottom channel. The top channel is portable in the way of the hatch and fixed to the underside of the hatch web and to the end coamings of the hatch. Wheels, with eccentric bushes are fitted to the bulkhead for rolling it clear. The eccentric bushes permit taking the weight off the wheels when the bulkhead is closed and opened. The hatch cover on the shelter decks are of the Macanking type.

THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.

On Handling Pineapples

IN HANDLING pineapples at Kahatin, Hawaii, if time permits before arrival of ship, the cars are discharged and the cases stacked on platform slings which are laid across boxes on transit shed floor so that they are ready to be lifted by power lift trucks and taken to apron, under the fall.

In discharging the cars, the platform slings are placed at the doors. Roller conveyors are used to take the cases from the cars to the sling platforms. They are then lifted by power lift truck and moved the several feet or so to a place of rest on the floor, and await arrival of ship.

Working cars direct to ship the conveyors are likewise used from inside car to platform slings which have been placed directly in front of doors. Some are on trailers and some on boxes. On arrival of a lift truck with empty platform slings and trailers, the operator lifts one platform sling from boxes and hooks on one trailer load, taking both to the hatch. On arrival at hatch the trailer is dropped near at hand and the loaded platform sling which is on the truck is landed across boxes which are under the falls. The empty platform slings having been placed on the empty trailer. The power lift truck backs out, picks up the empty trailer and platform slings and returns to car. A finger lift truck is also used in this manner.

The platform slings are hoisted into the hold by burton fall, landed in the hatchway and section rollers are used to take the cases to place of stowage in the hold. In the case of sideport ships, the rollers are used from the apron through the side port to stowage. The same means are employed from car to shipside.

Using Care in Stowage

CAUSTIC soda, sal soda and soda ash, coming in contact with galvanized sheets and pipe which have become wet from sweating or other causes, removes the galvanizing and results in heavy damage claims. Paint is also removed from cargo and ships' structure by these soda products; plain steel is not damaged, rust only is removed.

Damage is now avoided by protecting surrounding cargo and ships' structure by matting or by dunnage boards and tar paper. In slinging overside, care must be taken to prevent soda from sifting on to other cargo. A platform sling is better suited for handling this character of cargo than a rope or a canvas sling. Rope or canvas slings cause the soda ash to sift as the slingload is jerked overside.

Insulated Hatch Covers

INSULATED hatch covers of Macanking type are made in three thwartship sections to suit the usual practice. The sections are built of steel plates with athwartship stiffeners, and are insulated on the underside in a similar manner to the deck. Brine grids are permanently housed on the underside of the cover sections.

The cover sections (with brine grids attached) roll off in a fore and aft direction by means of the Macanking wheels fitted with eccentric bushes. A one-half turn of the bushes with a marlinspike raises the cover about an inch from the watertight packing. The covers are arranged so that any one section can be left open by rolling.

Hatch coamings should be equipped with sockets and stanchions so that safety lines may be stretched around hatches when hatch covers are off and no cargo is being worked.

Up and Down the Great Lakes

Ore and Package Freight Movement Increases — Lake Levels—Propeller Club Activities—Agreement Studied—More Ships in Service

CANADIAN government figures continue to show that traffic on the Great Lakes this year is greatly improved over a year ago.

Freight through the Canadian and United States locks at Sault Ste. Marie during May amounted to 3,490,336 tons, or over twice the tonnage of May, 1932 which was 1,568,462 tons. Wheat shipments increased from 17,537,997 bushels to 35,301,914 bushels and other grains increased from 5,269,082 bushels to 9,579,262 bushels. Iron ore increased by over 600 per cent to 953,152 tons. It must be remarked, however, that this is still light compared with 1931 and preceding years. Bituminous coal almost doubled, increasing from 445,092 tons in May, 1932 to 821,273 tons for May, 1933.

An increase has also been shown for the Welland ship canal, due mainly to a heavy movement of wheat amounting to 461,042 tons or 15,368,066 bushels. This had the effect of increasing the total freight through the Welland canal from 1,036,879 tons in May, 1932 to 1,109,113 tons for May, 1933. Flour was heavier this year during May by 30,301 tons, merchandise by 43,507 tons and bituminous coal by 61,474 tons. Barley decreased by 56,880 tons, rye by 90,768 tons and pulpwood by 31,680 tons.

Through the St. Lawrence canals large decreases in barley, rye, pulpwood and bituminous coal and smaller decreases in other commodities more than offset increases in wheat shipments of 84,855 tons, or 2,828,500 bushels; in flour of 19,956 tons; in gasoline of 20,432 tons; in merchandise of 37,146 tons; and in anthracite coal of 28,003 tons; so that the total traffic amounting to 835,430 tons was less than for May, 1932 by 42,673 tons. For the two months April and May, however, the total traffic through the St. Lawrence canals amounting to 1,187,528 tons was heavier than for the same two months in 1932 by 30,499 tons.

Package Freight Increase

A definite increase of as much as 22 per cent in the package freight movement was reported early in June by H. S. Noble, president of the Great Lakes Transit Corp., Buffalo. This movement is to and from Lake Superior and Michigan ports.

Increases were noted in all the various categories of the package freight trade, no single commodity being responsible for the increase. The Great Lakes Transit Corp. operates ten package freighters from Buffalo.

May Lake Levels

The United States Lake survey reports the monthly mean stages of the Great Lakes for the month of May as follows:

Lakes	Feet Above Mean Sea Level
Superior	602.37
Michigan-Huron	578.46
St. Clair	574.60
Erie	572.10
Ontario	245.32

Lake Superior was 0.48-foot higher than in April and it was 0.17-foot higher than the May stage of a year ago.

Lakes Michigan-Huron were 0.50-foot higher than in April and they were 0.09-foot lower than the May stage of a year ago.

Lake Erie was 0.46-foot higher than in April and it was 0.26-foot higher than the May stage of a year ago.

Lake Ontario was 0.47-foot higher than in April and it was 0.82-foot lower than the May stage of a year ago, 0.97-foot below the average stage of May of the last ten years.

Propeller Club Field Day

The first annual golf tournament and general get-together of the members of the Propeller club, Port of Cleveland, was held at the Westwood Country club on June 22. Around 150 members and guests participated, in the activities. Arrangements for the party were effectively carried out by a committee consisting of W. P. Schaufele, Lee Wallace, Lee Hinslea, and Walter Dressler.

The Propeller club of Chicago is now occupying permanent quarters in the Allerton hotel, 701 North Michigan avenue, Chicago. All members of Propeller clubs in other ports who happen to be in Chicago are invited to make use of the facilities.

The annual convention of the Propeller Club of United States will be held at Pittsburgh on Oct. 12, 13 and 14, the Pittsburgh club acting as host. Among other attractions at that convention will be the opportunity to attend the Navy-Pittsburgh football game on Oct. 14. Members of Propeller clubs in all ports are invited to attend. Arrangements can be made through the local organizations.

Annual election of officers of the Propeller club for the Port of Cleveland, will be held on Monday evening July 10. At that time officers will be elected for the ensuing year and directors will be elected, for one, two and three years.

A notice has been issued of the change in names of three freight steamers operated by Midland Steamship Co. The WM. H. BECKER is now the EDWARD N. SAUNDERS JR.; the FRANK SEITHER is now the HAZEN BUTLER; and J. A. DONALDSON is now the J. H. MACOUBREY.

Ore Movement Increases

During May this year shipments of ore from upper lake ports amounted to 900,534 tons as compared with 110,826 tons for the month of May, 1932. Up to June 1, 1933, a total of 983,744 tons of ore were shipped from upper lake ports, as compared with 154,899 tons up to June 1 a year ago.

Balance of ore on docks at Lake Erie ports on June 1, 1933, amounted to 4,906,953 tons, compared with 5,533,246 tons at the same time a year ago.

Whether a continued increase in shipments will hold must depend upon the condition of business. As there are now many assurances of increased activity, including the public works program, improvement in the ore movement should continue.

Suspend Agreement

The shipping board held a hearing June 21 in Washington with reference to the protest of the Wisconsin and Michigan Transportation Co. against the approval under section 15 of the shipping act of 1916, of an agreement between the Milwaukee Boat Co. and Pere Marquette line steamers, providing inter alia for joint operation and pooling of revenue.

As this is written no information is available as to the details of the outcome of this conference.

More Ships in Commission On the Great Lakes

As of June 15, ninety-nine American lake ore vessels, of a total aggregate trip capacity of 811,500 tons, were in commission. This represents 29.19 per cent of the total aggregate trip capacity of 2,780,500 tons of American lake ore vessels and 29.82 per cent of the total number of 332 vessels. Forty of these ninety-nine vessels were engaged in the ore trade. This represents a favorable showing over a year ago as of June 23, 1932, when sixty-seven vessels or 20.44 per cent of the total capacity were in operation and only fifteen of which were engaged in the ore trade.

Furthermore, the immediate future prospect for business on the lakes is greatly improved over a year ago. The Pittsburgh Steamship Co. with fifteen vessels in commission as this is written is making ready to place twelve to fifteen additional vessels in service. The M. A. Hanna Co., with four vessels now in service, is planning to place five additional vessels in operation, almost its entire fleet.

Within the next three weeks it is now confidently expected that the American lake ore fleet in commission will be increased by an additional twenty-five to thirty vessels. If steel production continues to increase, and the present indications are that it will, still further demands for ore will call for additional vessels. Almost everyone is now hopeful of a steady improvement in vessel movement throughout the season of navigation.

L. E. Jeanneret, special representative of the Babcock & Wilcox Tube Co., is acting temporarily as district sales manager of the company's Detroit territory, replacing J. E. Polhemus, former manager.

Capt. Ralph H. Bonnett, Lakewood, O., master of the freighter JOHN MCCARTNEY KENNEDY, was killed in an automobile accident in Benton Harbor, Mich., May 6.

Joseph James Tynan Dies

Joseph J. Tynan, 61, noted shipbuilder and vice president of the Bethlehem Steel Co., died at San Francisco on June 6. Joseph James Tynan came to this country from Ireland when he was 17 years old and began his career as a common laborer. In Philadelphia he attended the Spring Garden institute of that city. He worked for Wm. Cramp & Sons, Ship & Engine Building Co. and in 1905 had risen to a position of general manager of that shipyard.

In 1906 he came to the notice of Mr. Schwab and was sent to San Francisco as head of the Union Iron-works, which later became the principal West coast shipbuilding center of the Bethlehem Shipbuilding Corp. From 1909 until his retirement last August he was vice president in charge of the West coast activities of the Bethlehem Shipbuilding Corp. Since his retirement he had served the Bethlehem Steel Co. as vice president in a consulting capacity.

During the war he was sent to Montreal to supervise the construction of ten submarines for the British admiralty. This was one of the outstanding feats in shipbuilding during the war. The ten vessels were delivered within five months. During the war Charles M. Schwab, director general of the Emergency Fleet Corp., honored Mr. Tynan by

conferring on him a gold medal for his quick delivery of vessels.

He was a member of the San Francisco harbor commission in 1931. Among the associations of which he was a member are, the American Society of Mechanical Engineers, Society of Naval Architects and Marine Engineers and the San Francisco chamber of commerce.

Tell Direction of Wind

As this comes from a deep sea fisherman, it can be taken with a grain of salt. He reports to the fish and game department of the Canadian railways, that, by the Atlantic ocean, the change in wind direction can be foretold by the stance of seagulls on pilings and wharf structures.

He says that gulls at rest ashore will always face the way the wind is blowing but within three hours of an approaching variation they will head themselves in the direction from which the wind is to arrive.

Commerce of Los Angeles, Increase in Lumber

An encouraging feature of the commerce of Los Angeles harbor in the month of May was the decided upturn in the lumber trade. Receipts of lumber during the month of May totaled nearly 40,000,000 board feet, compared with less than 33,000,000 board feet for the month of May a year ago. The low point in lumber receipts was reached in February last, when less than 19,000,000 board feet were handled.

Total commerce through the port for the month of May aggregated approximately 1,200,000 tons at a value of $53,200,000. This was about $10,000,000 less than May, 1932, but was approximately the same as the commerce of the port during recent months.

Export to other countries amounted to $4,600,000 or about $1,000,000 less than for May, 1932, and a little less than in April of this year. Imports, however, showed an increase of $400,000 over the corresponding period of last month, and also an increase over April.

Trade with Hawaii showed a decided increase, both in and out, over the month of May last year, amounting to $686,000 worth of shipments to Hawaii, and $460,000 worth of receipts from Hawaai. This was also a decided increase over the preceding month of April.

Domestic trade of the harbor was about the same in May as in April although showing a slight increase in shipments. Intercoastal receipts and coastwise shipments were less than in the same period of last year.

Oil shipments, however, were at a low ebb, totaling only 4,857,000 barrels which is more than 2,000,000 under the month of May last year and considerably less than in April.

Charles T. Belbin Dies

A link with the past of American shipping was broken at the death of Charles Thomas Belbin who helped to design many of the famous old Baltimore clipper ships. He died on June 1 at the age of 98 at the home of his daughter, Mrs. J. C. Taylor, in Washington.

For forty years he conducted a shipsmith's shop at Cross street and Key highway, Baltimore. In those days the Patapsco basin was lined with shipyards that turned out famous sailing ships. Mr. Belbin came to the United States from England 78 years ago at the age of 20.

Directors of the Todd Shipyards Corp. at their monthly meeting May 24, declared a quarterly dividend of 25 cents per share.

Reviews of Late Books

The American Merchant Marine; cloth, 164 pages, 8½ x 5½ inches, numerous illustrations, maps and diagrams, issued by the American Bureau of Shipping, in co-operation with the American Steamship Owners association, the National Council of American Shipbuilders and the United States Shipping Board, supplied by MARINE REVIEW for $1 plus 15 cents postage, and in Europe by the Penton Publishing Co. Ltd., Caxton House, London.

This publication is undoubtedly the most pretentious effort yet made to present in compact form all of the essential facts concerning the foreign trade, ocean and coastwise shipping, shipbuilding and ship repairing of the United States.

Its preparation was prompted by the belief that there is need for such information in concise form and that it would be of value to those interested in the many phases of merchant marine activities. The book opens with quotations of the opinions of the country's eminent statesmen, past and present, regarding the American merchant marine. Pertinent information is given concerning American shipping legislation.

The following chapter headings will give a good idea of the contents of this interesting book. These chapter headings are: United States Shipping Board; Post Office Department and the Merchant Marine; Merchant Marine and National Defense; Merchant Marine and Foreign Trade; Manufacture and the American Merchant Marine; Chamber of Commerce of the United States; American Bureau of Shipping; Ocean Shipping; The Shipbuilding Industry; Insurance; and Foreign Competition.

In addition there are three appendices covering opinions of other eminent statesmen relating to the American merchant marine; historical background of our shipping legislation and a definition of shipping terms.

Anyone interested in accurate information concerning the American merchant marine will find this book invaluable.

Rhyme of the Marie Celeste; by Hamish MacHuisdean; paper, 16 pages, 8 x 5 inches; published by Fraser, Edward & Co., Glasgow, supplied by MARINE REVIEW for 25 cents plus postage, and in England by the Penton Publishing Co. Ltd., Caxton House, London.

This is a most unusual document. It records in well written rhyme the strange story of the greatest of sea mysteries—what happened to the crew of the American vessel MARIE CELESTE?

The MARIE CELESTE, a brigantine built at Bath, Me., cleared from Hell Gate, N. Y., Nov. 7, 1872, for Genoa. She carried 13 all told when she sailed. Included in this number were Capt. Benjamin S. Briggs of Marion, Mass., his wife and little girl.

The MARIE CELESTE was picked up on Dec. 5, 17 degrees, 15 minutes west and 38 degrees, 20 minutes north, with sails set and quietly heading for Setubal, Portugal, and at that time 444 miles west of this port. Not a sign of any human being was found on board and to this day the mystery is unsolved. This little rhyme of the MARIE CELESTE is a striking account of this strange affair. It is supplemented by an appendix in which is given a factual account of all the circumstances of the incident.

Employment is Reduced in American Shipyards

The National Council of American Shipbuilders through its president, H. Gerrish Smith, on May 23 issued a statement on employment in private American shipyards. It is pointed out in this statement that employment in the shipbuilding industry of United States is now at the lowest point since the war.

On May 1, there was not a single seagoing merchant vessel under construction in American shipyards. The only commercial work under way at that time was the construction of a few small craft for bay and harbor service. Not only in tonnage, but in money value of unfinished contracts and in the number of men employed is the situation now worse than at any time in recent years.

A small volume of naval work, six vessels in all consisting one airplane carrier, one cruiser, two destroyers and one submarine—all well advanced toward completion and one cruiser just begun, together with the small miscellaneous merchant craft mentioned constitute the sum total work in process in the private shipyards.

In its appearance before the house committee on the merchant marine and fisheries early in 1928 in connection with the merchant marine legislation then pending the National Council of American Shipbuilders pointed out the importance of shipyards to the United States:

1. As a basis for our merchant marine.

2. As an essential factor in our national security.

To be able to perform these functions in an emergency, requires the continuous operation of the private shipyards at all times. This requirement is just as important today as it was then.

What is true in the construction of new vessels is equally true in the ship repair industry where the volume of work has been greatly reduced owing to the large amount of idle tonnage and to deferred repairs to ships in operation. Unemployment in the ship repair yards is also very great.

The age of our merchant vessels will, in time, bring about a renewal of shipyard activity, but the general depression in business that now prevails, which extends to shipping, will retard the return of prosperity to the shipbuilding and ship repair industries and the future outlook for private merchant shipbuilding construction will not in any way relieve the present situation in unemployment, which is acute. The only relief is a hope in a substantial participation in the building of any naval vessels that may be ordered. (This relief is now definitely here and work will soon commence on the navy program authorized in the bill recently passed. Editor's note).

Immediate relief to unemployment would be provided as orders for the material for the construction of new vessels would go out immediately to a large number of industries well distributed throughout the country.

The private shipbuilding industry when working at normal capacity employs many thousand of skilled artisans. The shipyards, together with the industries allied to it, are privately owned, and, therefore, pay taxes to the cities, counties, states and federal government.

Bremen Makes New Record

A new eastbound record of four days, 17 hours and 42 minutes was established by the BREMEN, of the North German Lloyd, during June. On her record run she was in command of Commodore Leopold Ziegenbein. Incidentally this is the exact time in which the BREMEN broke all previous transatlantic records on her maiden voyage westbound in July, 1929.

The BREMEN passed Cherbourg breakwater June 14 at 1:30 a. m. She left New York on June 9 passing Ambrose Lightship at 2:49 a. m. daylight saving time, and covered the long course of 3199 miles at an average speed of 28.14 knots.

The former record for the eastbound crossing was made by the BREMEN in February, 1930, when she crossed between Ambrose Lightship and Cherbourg breakwater in 4 days, 18 hours, flat, at an average speed of 27.31 knots, over the short course of 3114 miles.

Personal Sketches of Marine Men

Emmet J. McCormack, President, Maritime Exchange, New York

By Ben. K. Price

HIS intimate knowledge of the port and his experience in world shipping have helped the Maritime Exchange, of which he is president.

THOUGH recognized as a sound counsellor in determining general policies, he is a tireless worker insisting on thoroughness in details.

HE HAS consistently shown a fine public spirit in all matters relating to the national interests of the American merchant marine.

FOR approximately 40 years in marine shipping, starting as a "handy-andy" with a New York towing company to become a leading figure in ship coal bunkering throughout the world and for more than 20 years a prominent ship operator, Emmet J. McCormack gives to his position as president of the Maritime exchange, New York, to which he has recently been re-elected, elements which virtually assure a successful administration.

As implied by his record and experience, he is a man with a broad knowledge of world shipping, a traveled observer, a tireless worker, and, as is often the case, a most interesting man to meet and talk to. He is genial and unostentatious.

While appraised as a man more given to the formulation of general policies than to attention to details, he nevertheless is a great stickler for details. He demands details, exhaustive details, checked and rechecked, and his grasp of their significance has given him a high percentage of success in his ventures.

In addition to his practical knowledge of ship operation, he has a keen insight into financial matters. As a member of the firm of Moore & McCormack Co. Inc., 5 Broadway, he is not only vice president but treasurer.

Born in Brooklyn in 1880, Mr. McCormack at the age of 14 became associated with the Van Wie Towing Co., New York. In his formative years with this company he gained a clear conception of the fundamentals of shipping, with New York harbor, the largest port in the world, the school for his training. A few years later he became employed by M. J. Rudolph in the coal and dunnage business. Here the opportunities in coal bunkering of ships made their impression and in 1905 he formed a company of his own, the Commercial Coal Co.

With the operations first confined to New York harbor, Mr. McCormack expanded their scope rapidly to develop in time a world-wide coal bunkering business. He fortified his position by the acquisition of coal mines in West Virginia and western Pennsylvania and established agencies in many of the leading ports of the world. During these years he made many trips abroad.

In 1912, with Albert V. Moore, he organized Moore & McCormack Co. Inc. and accepted the agency of the Clinchfield Navigation Co. for which the company developed and operated a fleet of coal steamers until near the close of the World war.

Meanwhile, this company developed a fleet of its own, first establishing regular freight and passenger service between New York and South America. During the World war, incidentally, it operated the only passenger service between these points. It also developed services between the United States and Scandinavia. The Moore-mack and American-Scantic lines were formed to handle these services. Then the Moore-mack Gulf line was organized to conduct service with ports in the Gulf of Mexico.

As Mr. McCormack's responsibilities with the new company expanded he withdrew from his coal bunkering activities, and sold the Brooklyn-Richmond Ferry Co. which he organized in 1911.

During the World war Mr. McCormack. in association with Kermit Roosevelt and A. E. Clegg, became agent for the United States lines at the request of Albert D. Lasker, chairman of the United States shipping board. He, with his associates served in that capacity until 1923.

In this period his own company operated more than 60 ships for the shipping board and in 1920 established the Irish line, which was later taken over by the board. In 1921, Mr. McCormack was named one of the receivers of the United States Mail Steamship Co. and later with Messrs. Roosevelt and Clegg, operated the line.

Following the war Mr. McCormack's company took over 11 Hog island ships, making extensive alterations in their accommodations and increasing their speeds to 14½ knots. Today the company has 23 of its own ships in operation and four laid up. These ships total in excess of 150,000 deadweight tons.

Mr. McCormack is associated with numerous organizations, including the Society of Naval Architects and Marine Engineers, American Steamship Owners' association, the Propeller club, of which he was recently president, the Lawyers, the Whitehall, and the Manhattan clubs, all of New York. He is particularly proud of his honorary membership in the Marine Society of the City of New York, first organized in 1769. Other organizations include the Fox Hills, L. I., country club, the Pomonack, L. I., golf club, and the Atlantic Yacht club.

Mercantile Shipping

(*Continued from Page* 14)

ticular service of the ships of the two nations who are a party to that trade.

The United States has taken the position that it has both a moral and a political right as a domestic policy to grant aids as may be necessary to provide an American service in foreign trade from an American port. It will not agree to abrogate such a fundamental sovereign right. The war demonstrated to the American people the terrific costliness and the danger to national security of dependence solely on foreign ships.

Whatever can or may be done at the world economic conference to alleviate the mercantile shipping crisis, it is useless for Great Britain or any other nation to expect a reversal of the policy so clearly defined in the merchant marine acts of 1920 and 1928 to give encouragement to the development of an adequate American overseas merchant marine.

Sir John Latta at the annual meeting of the Nitrate Producers Steamship Co. Ltd., held in London, May 30, in speaking of the aid granted American ships referred to, "the fallacy of subsidizing cargo vessels in a self-supporting country, because of its hypothetical necessity as a war measure," and said, "inability to construct and use commercial implements on a self-supporting basis constitutes an infinitely greater national danger." This is the very thing that the American government is trying to overcome and by wise encouragement to make it possible to construct and use commercial implements on a self supporting basis. The pay of the British shipyard worker and the pay of the British seaman and steamship owner's staff are the prime elements in this inability, and this is what we are trying to overcome by government aid. If Sir John Latta knows of some less costly and more efficient way of reaching this objective, the American government will be mighty glad to hear from him.

Trunk Piston Diesels

The diesel direct drive ferry CHIPPEWA, of the Puget Sound Navigation Co., operating between Seattle and Bremerton, Wash., has successfully completed a year in service covering 73,200 nautical miles. She has operated seven days a week and has never missed a trip. The propelling power of the CHIPPEWA is a 2130 brake horsepower, trunk piston, two-cycle, mechanical injection, Busch Sulzer diesel engine.

Annual inspection of the CHIPPEWA, without taking the vessel out of service, was accomplished by pulling one piston at a time during daily layover between midnight and morning. The internal parts of the engine were found to be in excellent condition, with an exceedingly small wear of cylinder liners. Such performance in service is a practical demonstration of the adaptability for marine service of the simple, single acting, trunk piston, diesel engine of lower cost and lighter weight.

Joins Waterman Line

John A. Erickson, for some time assistant manager, ownership operations, of the Munson Steamship Lines, New York, has joined the Waterman Steamship Co. at Mobile, effective as of June 15.

Mr. Erickson has had many years of experience of a varied nature in steamship operations in connection with the widespread activities of the Munson Steamship line. For a time he is to be located in the home office of the Waterman Steamship Co. at Mobile, Ala., following which he will go to Europe for the Waterman organization.

Foreign Service Plan

Chambers of commerce and foreign trade groups of 30 cities have collaborated on a "plan of economy" for the bureau of foreign and domestic commerce which has been presented to President Roosevelt and Secretary Roper as a practical means of preserving the essential services of this bureau to American business firms engaged in foreign trade.

An outstanding recommendation of the plan is the appointment of commercial counsellors who would have charge of all commercial activities of the foreign services of the departments of state and commerce in each important trade region abroad. The post of commercial counsellor would be a new one and would include many of the duties now performed by commercial attaches and consular offices. The commercial counsellors will have a status in both commerce and state departments but their primary responsibility would be to the department of commerce.

Chas. M. Boling, representing the Dampney Co. of America, manufacturer of special protective coatings suitable for use in marine service, has moved from Detroit to Cleveland, as of June 1.

Radio Corp. of America announces the removal of its offices from 570 Lexington avenue to the R. C. A. building, 30 Rockefeller plaza, New York City.

Modern methods for proper insulation of large cargo and small ship store space with satisfactory, permanent sheet corkboard and cold piping and fittings, are described and illustrated in a forty-page catalog recently issued by the Cork Insulation Co. Inc., New York.

Baltimore Port Needs Include Canal Deepening

E. H. Pouder, director of the Export and Import bureau of Baltimore, emphasizes the constructive improvement measures in that port which might be carried out under the terms of the public works program.

Among these improvements are the completion of a well designed already laid out harbor dredging program; also, that the Chesapeake and the Delaware canal should be deepened to provide ocean draft vessel navigation in order to shorten Baltimore's connection with the northern seaboard and Europe.

Other waterway projects also are advocated, each one of them clear cut and definite. The most important, however, is the deepening of the canal. It is at present 12 feet deep and 90 feet wide, and is now of valuable service for shallow draft traffic. Careful surveys indicate that a minimum saving of $700,000 per year will be effected in present operation if this canal could be used.

During the month of April, 1933, 172 vessels in foreign, intercoastal and coastwise service entered the port of Baltimore in comparison with 188 for the month of March, and 209 for April, 1932.

The Colonial Navigation Co., operating a passenger service between New York, Providence and Boston, on June 9 announced the appointment of J. R. McDonough, formerly of the Hudson River Day Line, as agent at Pier 11, North river, New York.

Heavy Machinery Discharge

Included in the cargo of the German steamer Grandon from Bremen and Hamburg to Boston were three of the largest pieces of machinery ever transferred from a vssel to cars at this port.

The Grandon docked at the Tidewater Terminal, Army base, on May 24. Three steel cylinders, each 18 feet long by 12 feet, 5 inches in diamter and weighing approximately 30 tons, were brought from Hamburg. The wrecking outfit of the New York, New Haven and Hartford railroad was utilized in lifting the cylinders from the vessel and swinging them to the transformer well cars waiting on the track on the pier alongside the ship.

The cars are low slung to permit passage under bridges and through tunnels. The cylinders were all destined for Wisconsin paper mills. It is expected that other similar shipments will be routed through the port of Boston. The Grandon also brought 1100 tons of general merchandise.

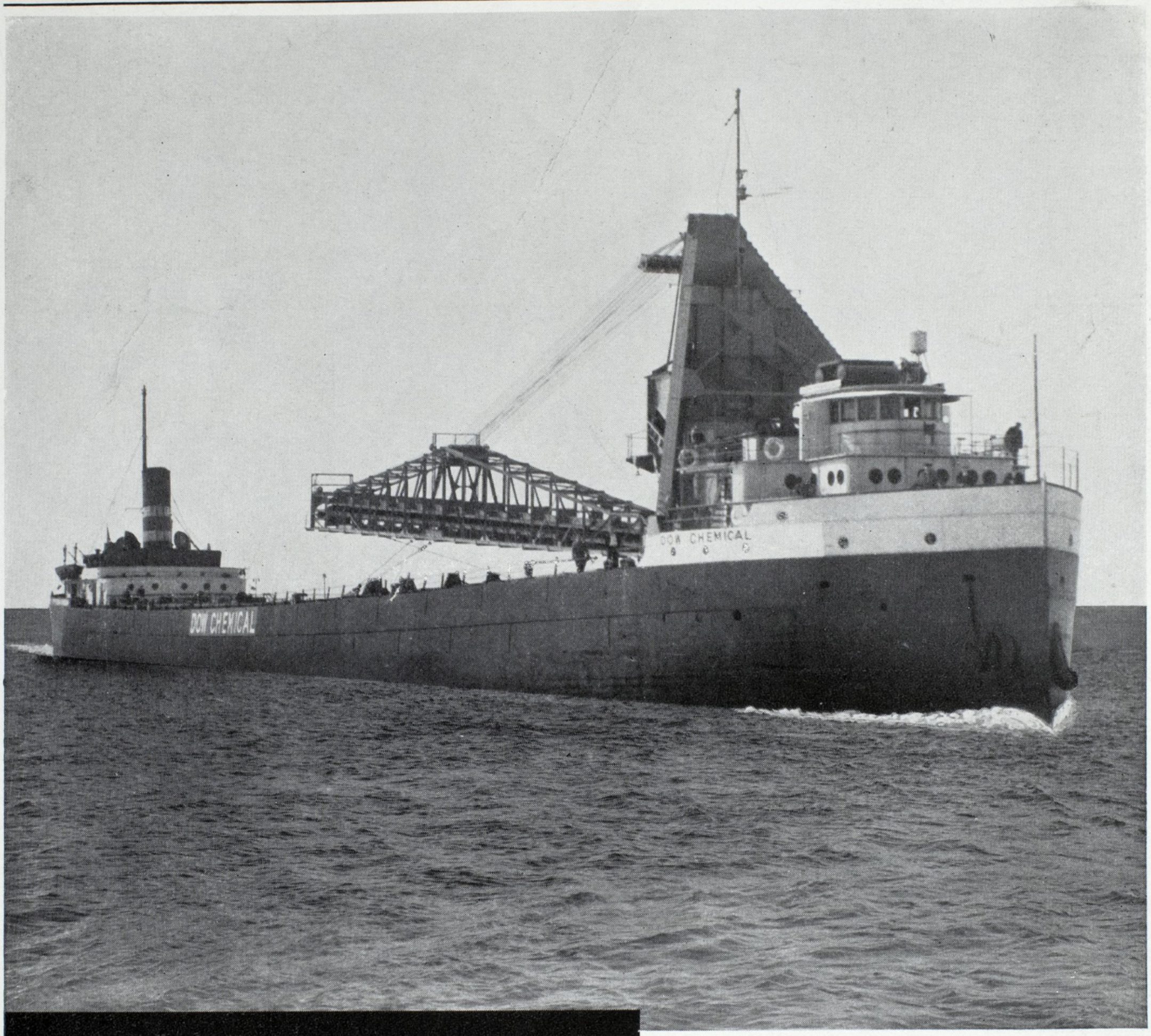
Marine Review

Reg. U.S. Pat. Off.

The National Publication Covering the Business of Transportation by Water

S. S. PETEN

July, 1933



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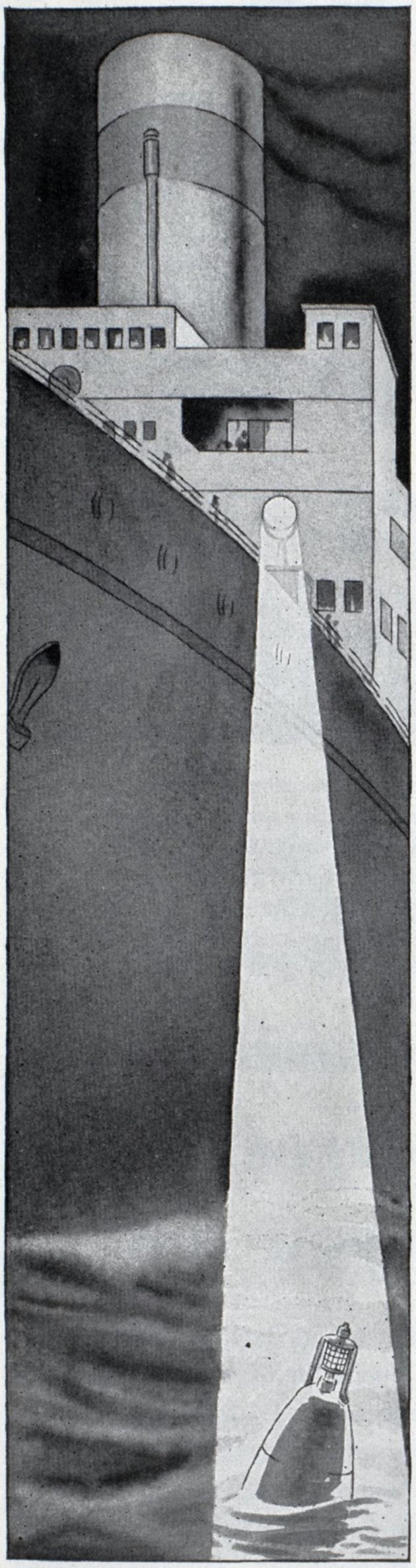
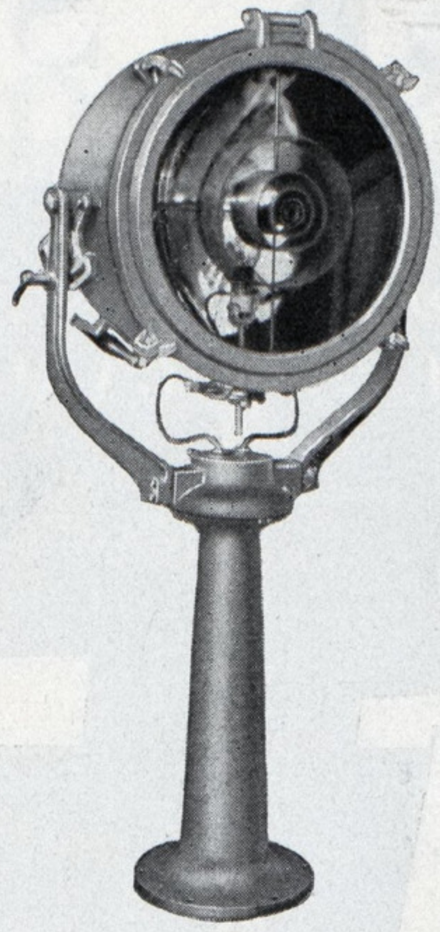
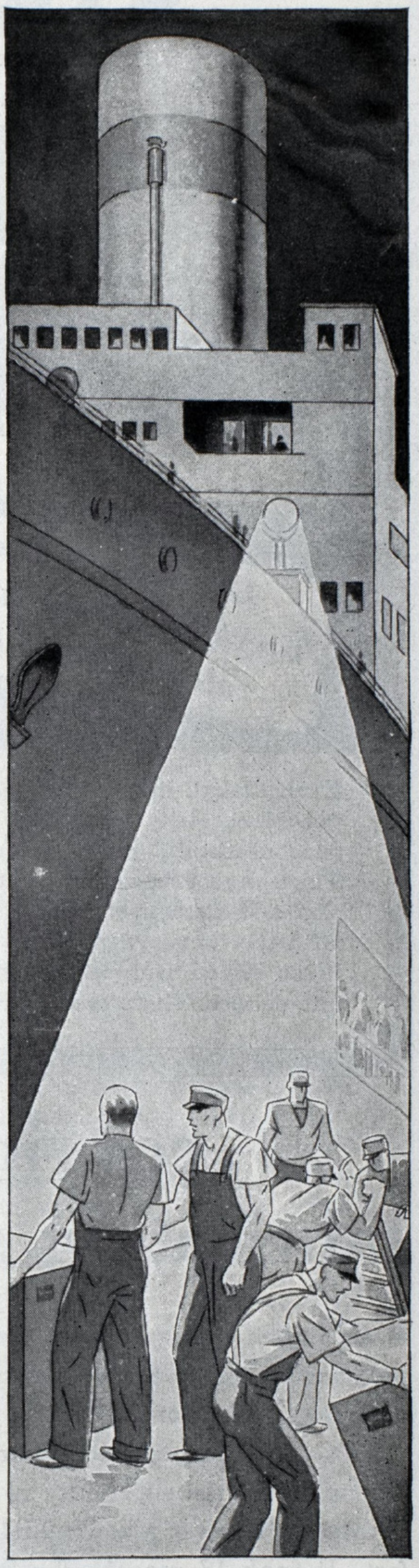
ELECTRIC EQUIPMENT ENGINEERED FOR MARINE SERVICE







This SEARCHLIGHT

also

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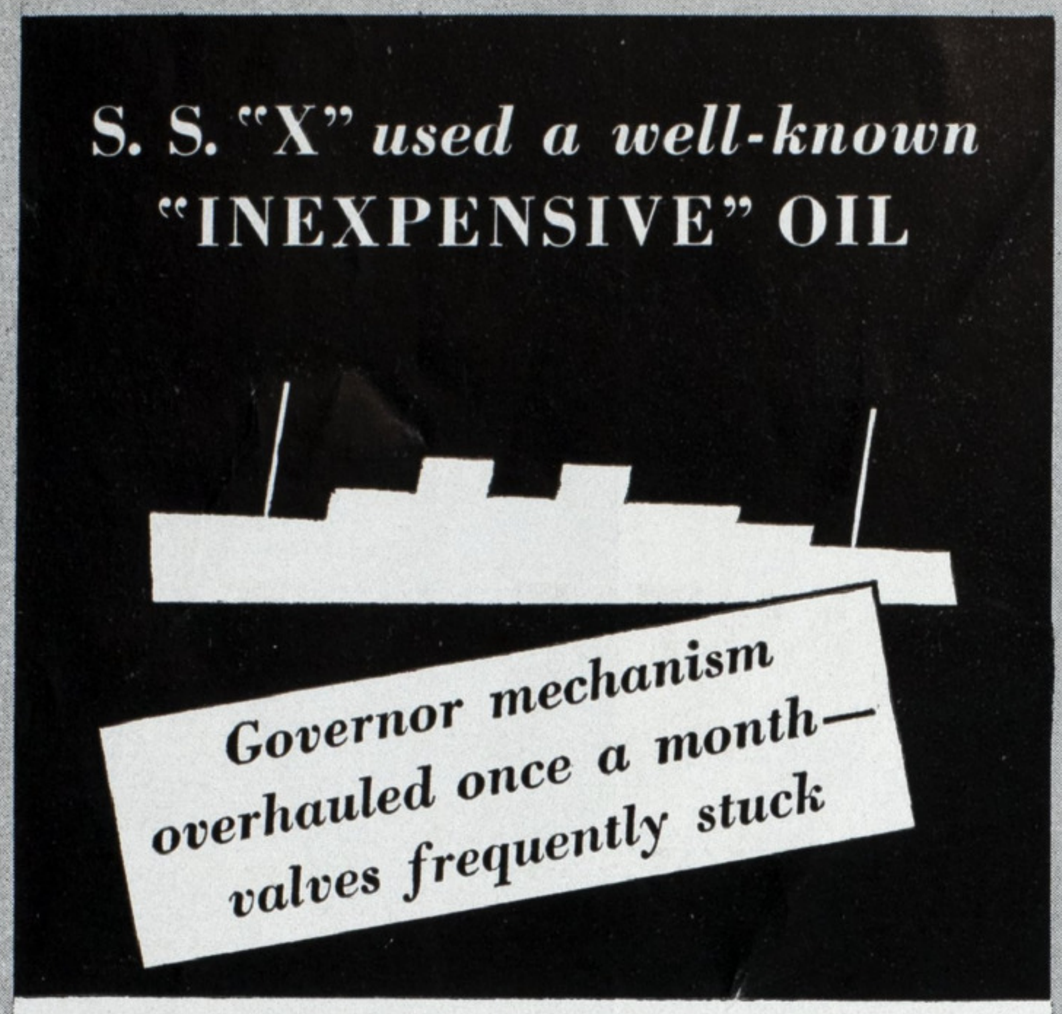

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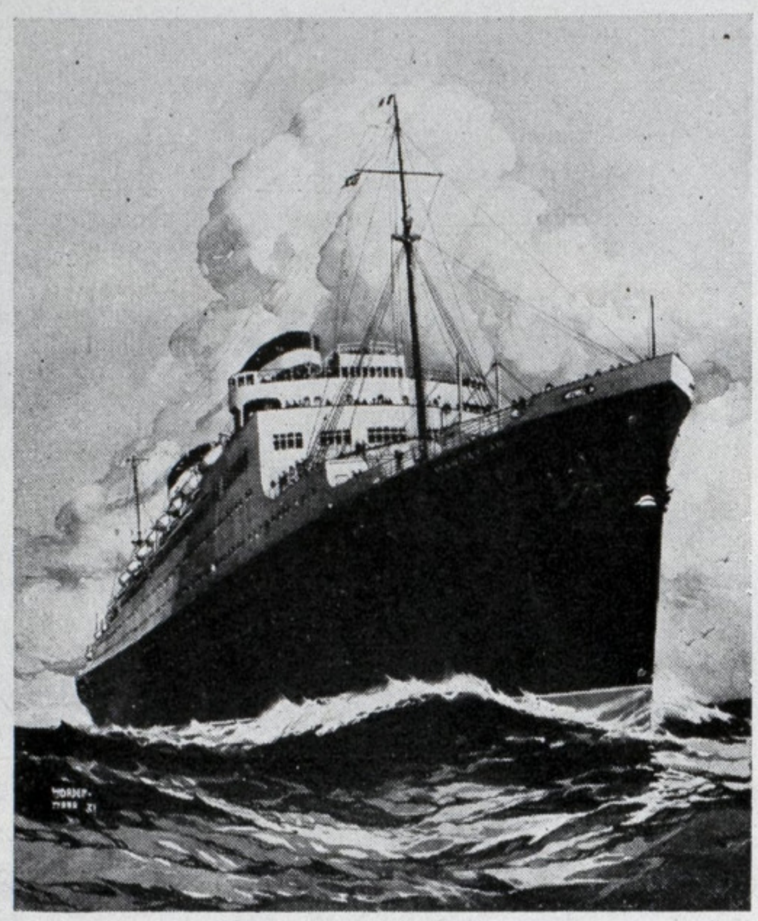

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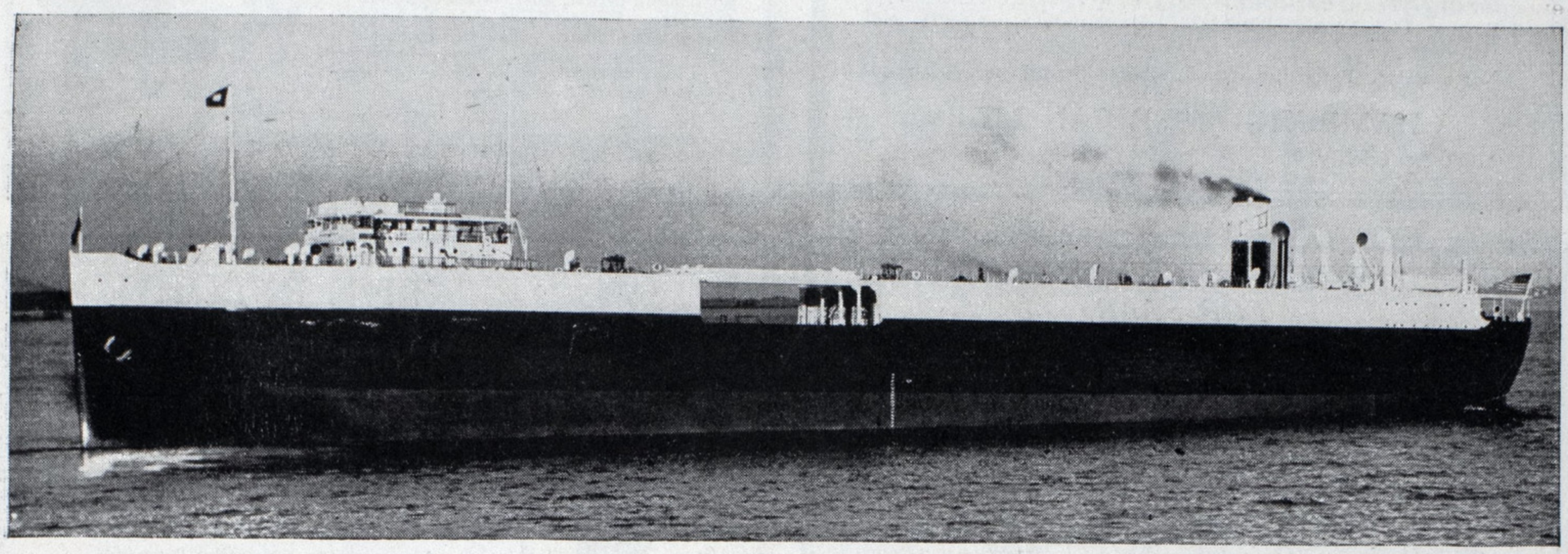

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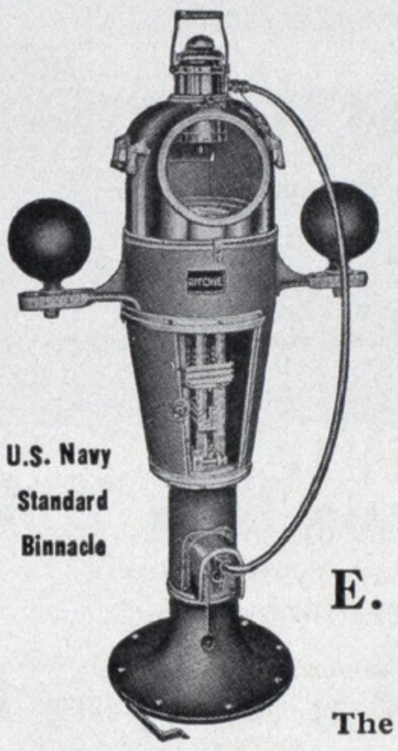

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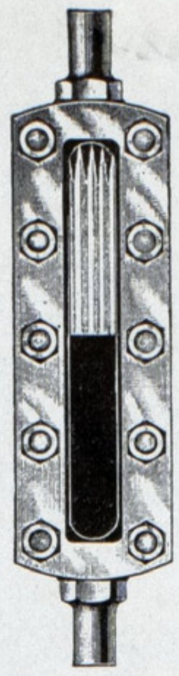

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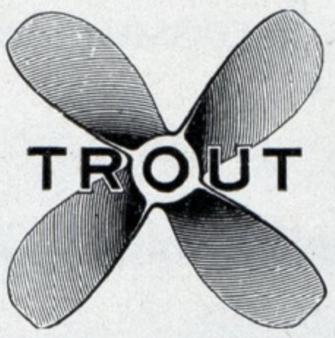

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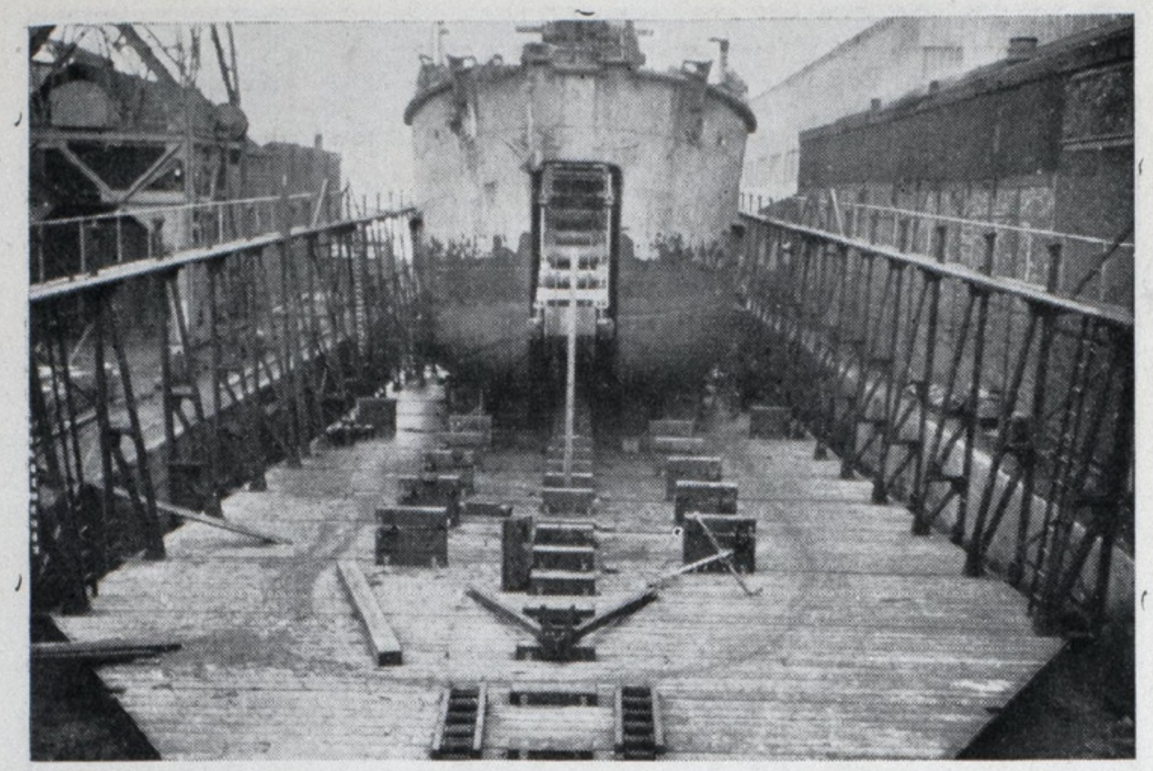

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